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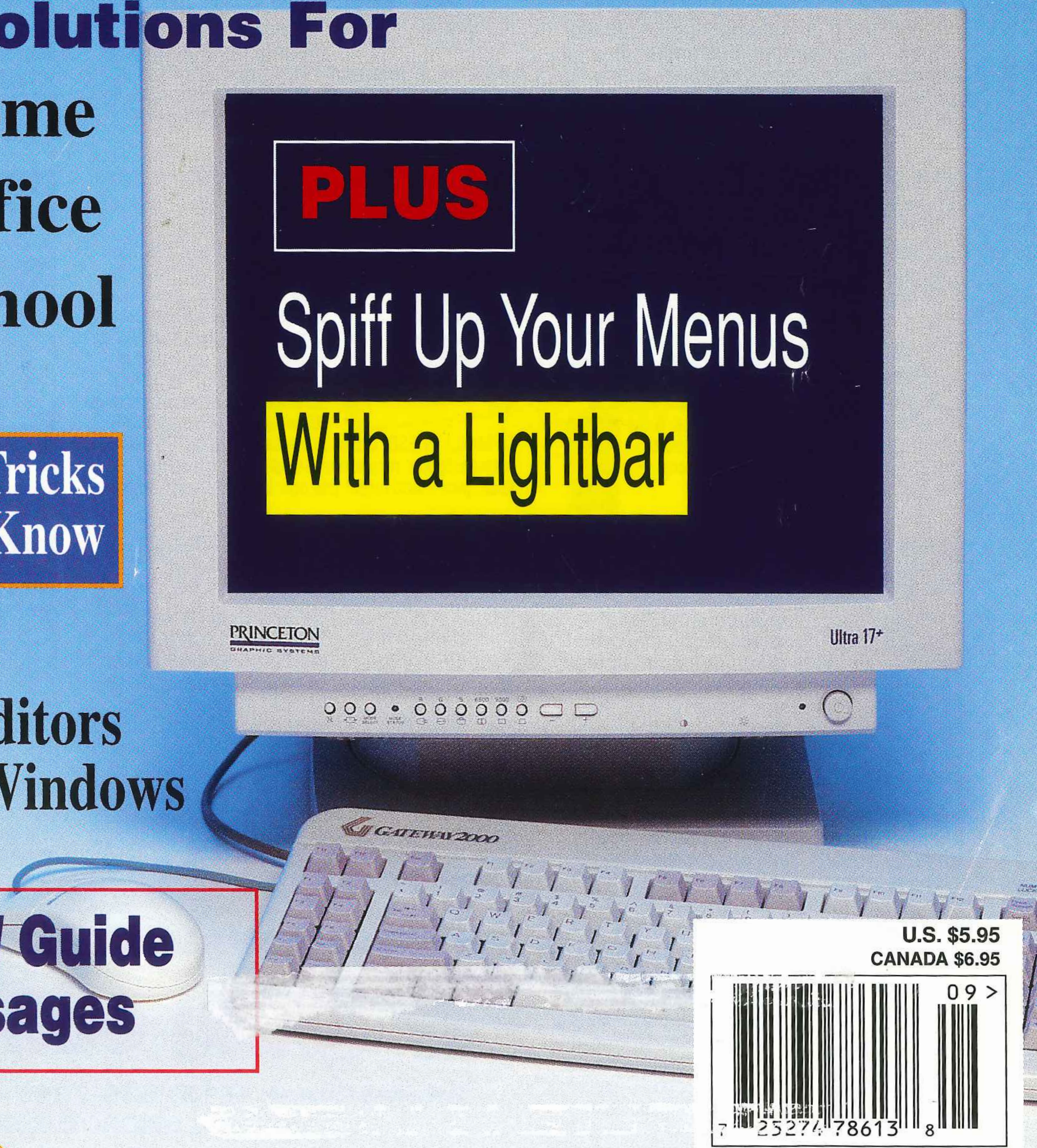

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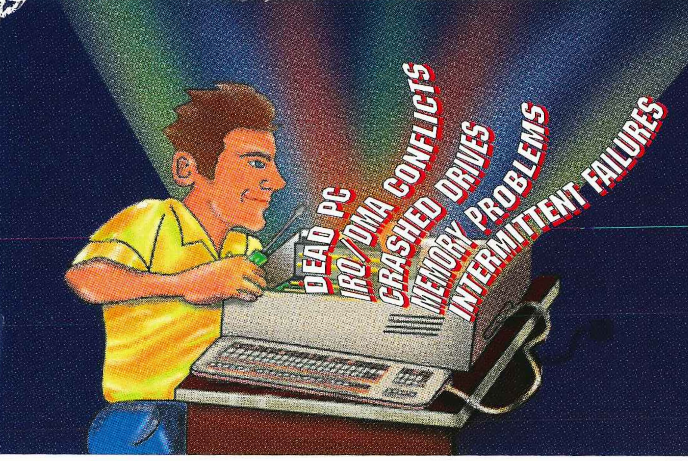

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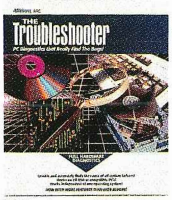

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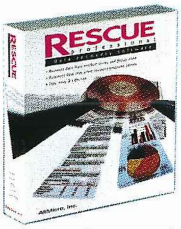

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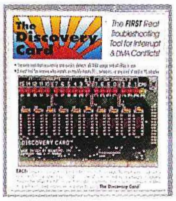
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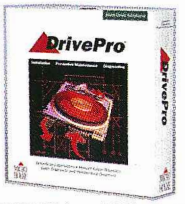

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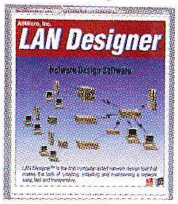

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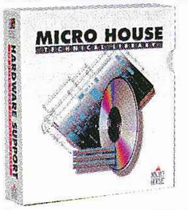

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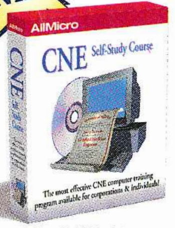
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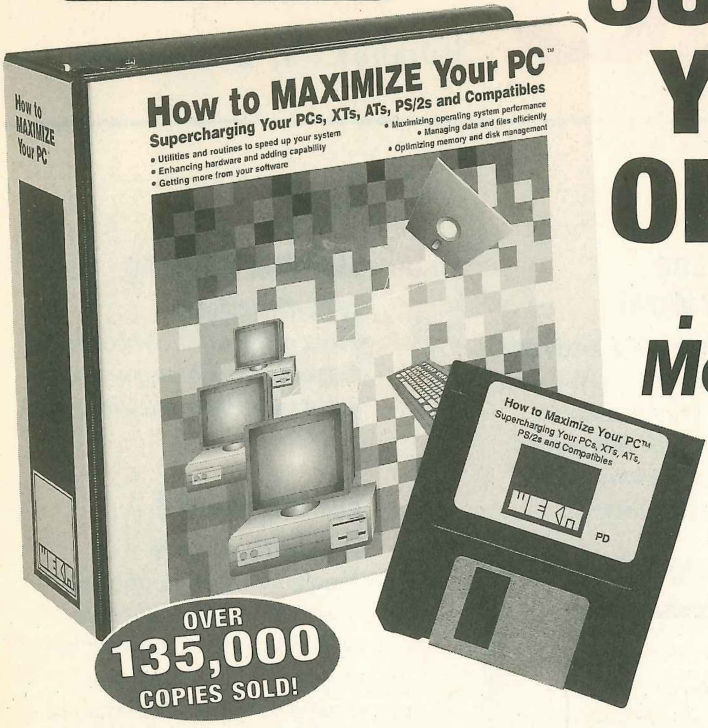
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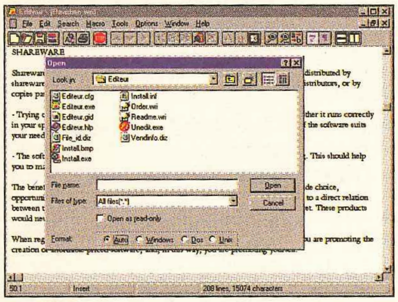

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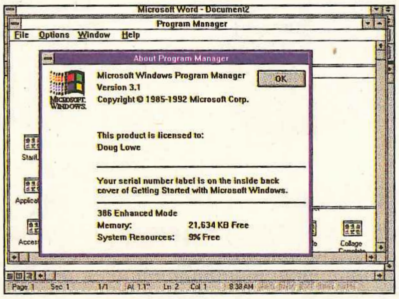

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On the Cover

Pictured on the cover is the Ultra 17+, a 17-inch monitor from Princeton Graphic Systems of Santa Ana, California, shown here with a Gateway 2000 keyboard. The Ultra 17+ features a 0.28mm dot pitch and a refresh rate of up to 75Hz at 1280-by-1024 noninterlaced resolution. It conforms to the EPA's Energy Star program and the Swedish MPR II guidelines for low electromagnetic emission.

Cover photo by Ed Judice.

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- *Turner Interactive releases* ***Dinotopia****, a new DOS-based interactive fantasy adventure on CD-ROM. Based on James Gurney's best-selling children's books of the same title, the game features live actors, 3D animation, and a first-rate storyline—with no blood 'n' guts. But the real stars, of course, are the Animatronic dinosaur puppets—a cast of truly unique characters that'll win the heart of any player, young or old.*
- *For Windows 95 kids comes* ***Mortimer and the Riddles of the Medallion*** *on CD-ROM, starring a flying snail and two youngsters who set out to rescue the world's wildlife. In the hands of LucasArts' innovative designers and programmers, even a lowly gastropod can be a hero.*
- *New reading material for the whole family:* **young@heart***, a general guide to computing basics, written with seniors in mind, and* **The Internet Kids Yellow Pages***, a handy reference listing more than 1800 sites either designed expressly for children or judged suitable for any age.*
- *Plus* ***CheckIt Diagnostic Kit 4.0*** *and* ***Norton NT Tools*** *for system maintenance; the Lexmark* ***Optra N*** *laser printer for networks; and* ***CyberLawn USA****, a new Web site that'll show you how to maintain your "Earth-friendly" yard.*

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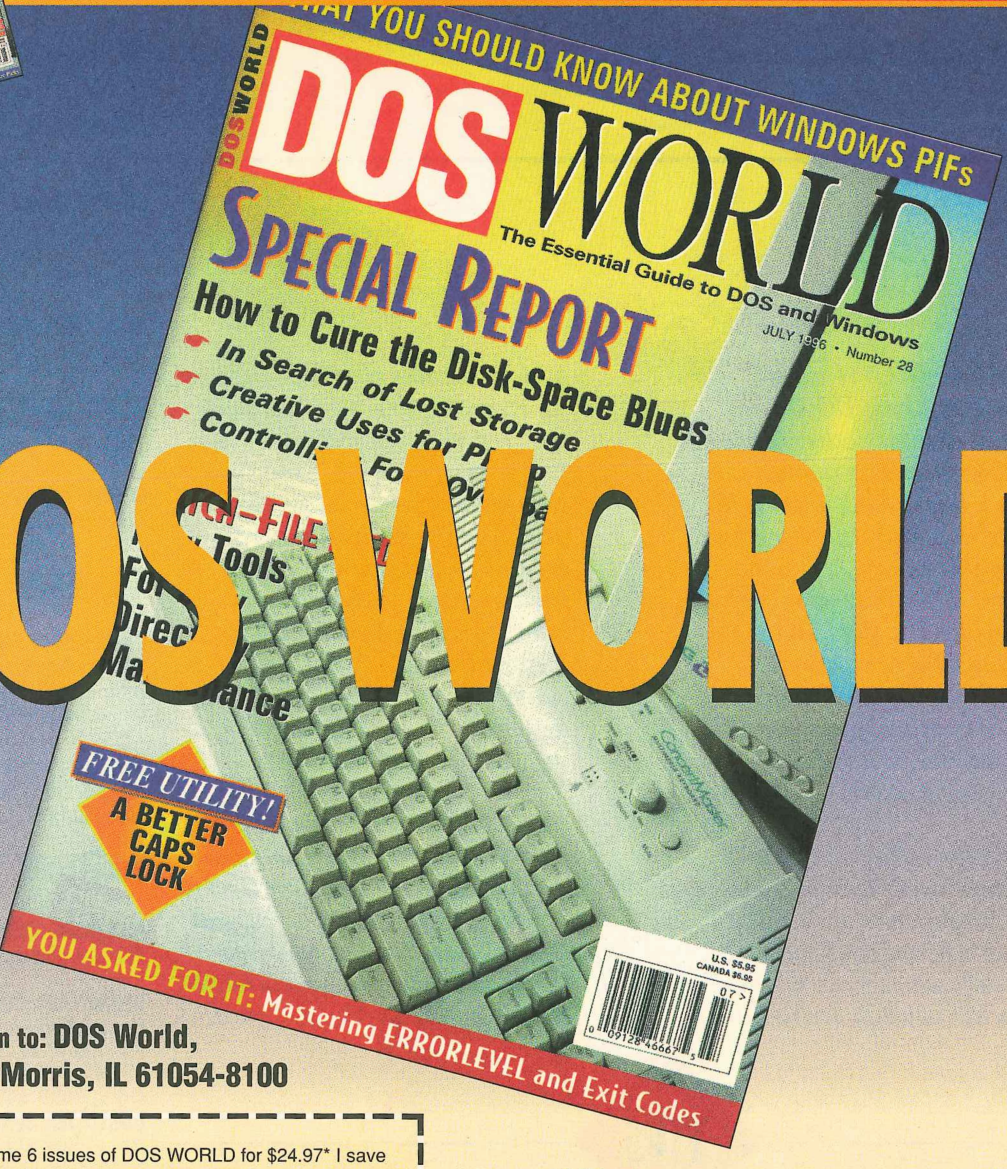
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DOS WORLD

Letters to the Editor

DOSKEY Editing

DOSKEY is probably one of the best things to come along since the invention of the PC. The tip "Speedy Editorial Services" in the May 1996 issue of *DOS World* [#27, page 50] explains a procedure for editing the command line. I've found, however, that you don't have to move back to the end of the command line after editing. If the command line is complete after editing, you can press the Enter key, regardless of the cursor's position; DOS reads the entire command line anyway.

Wade Wilson
Internet

New Disc Shuffle

If you'll permit me to borrow your forum, I'd like to address software manufacturers everywhere.

I began fiddling with computers in the early '80s. One of the more-contentious problems I recall was what was then known as "the floppy shuffle": removing floppy disks and inserting others just to get some work done. I found this interruption extremely annoying and was grateful for the arrival of the hard disk.

Now the shuffle is back. I have two or three programs that require the insertion of a CD. This type of software, although fully loaded onto the hard disk, still asks for a CD in the drive before it will work correctly. I scream each time the message comes across my screen. One example is a dictionary I purchased to work with WordPerfect; the stupid thing always asks me to insert the CD because it can't locate some file it needs. Corel's Print House is another.

Needless to say, I don't use these programs. I'm looking for a dictionary that will work without a CD. I already use Print Shop Ensemble II because it doesn't call for a CD. Now, before I purchase *any* software package, I check first to see whether it requires a CD in the drive. If it does, I don't buy it.

And I made sure my new computer had a 1.2GB drive when I bought it, so that I could fill it with my programs and get to work immediately, without interruptions and annoyances.

Dom Alvarez
North Hills, California

Modes Redux

I'm responding to Glenn Stumpff's letter to the editor ["No Longer in a Bad Mode," *DOS World* #27, May 1996, page 7] regarding a way to boot Windows 95 to the command prompt instead of to the graphical interface.

Why not just edit the MSDOS.SYS file instead? Look under the [Options] heading for this entry:

```
BootGUI=1
```

If the BootGUI entry isn't there, add it to the [Options] section, but change it to read as follows:

```
BootGUI=0
```

This line will boot your system only to the command prompt. Just type `WIN` to again load the graphical interface for standard Windows operation.

Another, more-versatile way is to add the following lines to MSDOS.SYS's [Options] sections:

```
BootMenu=1
BootDelay=2
BootMenuDefault=5
BootMenuDelay=15
```

The last two values may vary. For BootMenuDefault, check the number corresponding to the Command Prompt Only choice. For BootMenuDelay, use whatever value you think will give you enough time to choose the way you want Windows to start.

These four entries will bring up the boot menu each time you start your system. After the menu appears, you have 15 seconds (or whatever amount of time you entered for BootMenuDelay) to choose a different method of booting. If you make no choice, the BootMenuDefault entry takes over and starts your system accordingly.

By the way, MODE CO80 doesn't work on my computer, either.

Gregg Hill
Huntington Beach, California

Personalizing Program Manager

I really appreciated the article "Nesting Groups in Windows 3.1" [*DOS World* #27, May 1996, page 48], by Robert L. Hummel. An alternative method, which bypasses Debug, is to just open up the EXE file in Write, using No Conversion. Then use the Replace command to rename the INI file.

Jeffrey R. Ulmer
Ames, Iowa

That's a valid approach, although I don't recommend it; you must be extremely careful using global search and replace in an EXE *file.*

How to Contact The Editors

DOS World *welcomes letters, complaints, and submissions from readers. The easiest way to reach the editors is the U.S. mail:* DOS World, *86 Elm St., Peterborough, NH 03458. All letters to the editor and questions are understood to be submitted for publication unless otherwise indicated. You can also reach our staff electronically over CompuServe at* ***75300,2357*** *or the Internet at* ***75300.2357@compuserve.com****. Please include your complete address and a daytime phone number on your correspondence.*

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DW *makes every effort to verify its articles and programs, but the magazine assumes no responsibility for any damages because of errors or omissions in our articles. Corrections to listings or articles are printed as soon as possible.*

Debug is a better tool for this type of precision programming.

—Rob Hummel

I can't get my Program Manager title bars to look like those in the screen shot in "Nesting Groups in Windows 3.1," with "[Alternate Desktops]," "[Applications]," "[Internet]," and so on. All I get is good old "Program Manager."

John Rife
CompuServe

Directions for achieving this layout are on page 50 in that article. But note that you don't have to use nested groups to change your Program Manager title bar. Here's another method, contributed by reader Ed Evans:

1. *In Program Manager, open the StartUp group.*
2. *From the File menu, choose New / Program Item.*
3. *In the Properties dialog box, type whatever you want in the Description field.*
4. *In the Command Line field, type* PROGMAN.EXE*'s path. (On many computers, it's* C:\WINDOWS\PROGMAN.EXE.*)*
5. *Press Enter or click on OK. An icon title in the StartUp group will show whatever you typed in the Description field.*
6. *Double-click on the icon and you'll see that Program Manager's title bar also changes to show whatever you typed in the Description field.*

Because this icon is in the StartUp group, Program Manager will automatically change its title bar whenever you start a Windows session. If you want to edit Program Manager's title bar, highlight the icon in StartUp, select Properties from the File menu, and type in a new description. *—Eds.*

Fan Mail

Excellent! Stan Miastkowski's recent article, "The Hidden Faces of Windows 95 Installation" [*DOS World* Special #8, April 1996, page 24], was just great. This is the first time I've gone so deep into changing any Windows-based system. It's just what the doctor ordered—I sometimes like to go back to the original feel of Windows 3.1. It's an old habit—hard to break.

John W. Van Dyke
Corinna, Maine

Keep Those TSRs in Line

I recently tried the "PC Toolbox" utility KEYCLICK.COM ["Listen to Your Keyboard," *DOS World* #27, May 1996, page 55]. Like a number of other freeware, shareware, and commercial utilities, KEYCLICK.COM is subject to multiple loading, which, of course, consumes memory. Once loaded, you can remove these TSRs [terminate-and-stay- resident, or memory-resident, utilities] only by rebooting. The following batch file, KEYCLICK.BAT, prevents multiple loading:

```
C:\DOS\MEM/C|C:\DOS\FIND/I "KEY-
  CLICK">NUL
IF NOT ERRORLEVEL 1 ECHO KEYCLICK
  already installed!
IF ERRORLEVEL 1 LH C:\UTILITYS
  \KEYCLICK
:END
REM BATFILES must come before
  UTILITYS in your path
```

Note that this program assumes that your batch files are in a subdirectory called C:\BATFILES and that KEYCLICK.COM is in a subdirectory called C:\UTILITYS.

You may use KEYCLICK.BAT's basic form as a generic loader. Just change its name to ANY_TSR.BAT and replace KEYCLICK in the first three lines with ANY_TSR, and you can use it with another memory resident program (ANY_TSR.COM/ EXE).

I'm using KEYCLICK.COM to replace a commercial product. The third-party program does contain frequency and duration switches, but overall, KEYCLICK.COM is better.

George G. Emert
Bethesda, Maryland

Power Booting

In Hardin Brothers' response to Roger Gledhill's second "Reader Forum" question ["Variety Show," *DOS World* #27, May 1996, page 17], he mentioned an admittedly expensive commercial program that lets you boot to any of several operating systems on one computer. But what about the comparable utility that comes with OS/2—Boot Manager? Gledhill already has this utility, so solving his problem won't cost him anything more.

Curtis A. Bennett
Burlington, Ontario
Canada

Boot Manager would work okay on a simple system. It needs a separate partition for each operating system, though, while System Commander can boot several operating systems from the same partition.

—Hardin Brothers

Disabling Debug

In response to your question in "Give Me a Break" [page 11 in "Reader Forum," *DOS World* #26, March 1996], I have a quick and easy solution for QuickBasic 3.0. In the Run/Compile dialog box, note the section Compile Options. One of those options is Debug; it's enabled by default. Simply disable it and you'll completely disable Ctrl+Break.

Jason Brown
Laconia, New Hampshire

This trick also works in later versions of QuickBasic and in Visual Basic for DOS.

—Hardin Brothers

NUL Assistance

The NUL trick outlined in your DOS tip "Putting NUL to the Test" [*DOS World* #26, March 1996, page 26] doesn't work with Novell Netware 3.x. (Nor does it work with 3Com, but is anyone using that anymore?) I wrote a routine called ISDIR.EXE to get around the network problem as well as the limitations Darren Natale mentioned in the tip. It's available as freeware on the *DOS World* BBS [ISDIR.ZIP in File Area 5; dialing instructions on page 64].

Kevin Nathan
Internet

The Win95 Debate Continues...

I have a few thoughts to share on Windows 95 coverage. Except for a few graphics programs that require Windows, I try to avoid it whenever possible. It eats up a lot of memory, slows down my system, and takes control of the PC out of my hands.

I'm still trying to figure out how I'm going to afford a new computer so that I can keep up with the rest of the world. There's no way I can switch to Windows 95, buy all the software I need, and replace the things that won't work with it.

Mike Marks
CompuServe

Windows is here to stay. DOS may not be dead yet, but it's on its way out. That's too bad, because I still favor DOS. I make my living with a DOS CAD program, and although there are Windows CAD programs, they aren't as fast as their DOS counterparts. With Windows 95, I hope that will change.

Some software companies have already abandoned DOS and write programs only for Windows. Unfortunately, people who own 8086 and 286 machines are already too far behind. These folks will be the first to complain and try to fight off Windows 95, but Microsoft will drag us into the future whether we want to go or not.

Will I upgrade? Yes. My computer has the power to run Windows 95, but not at its full capability. I plan to update my system. Why should I? Because that's where the future is. As graphics programs, spreadsheets, databases, and word processors become more and more powerful, older machines will seem like typewriters in comparison. Remember the old Atari 2100 and all its "great" games? Remember the Model T Ford?

I don't want *DOS World* to abandon DOS, but it should offer more Win95 information. I feel that the magazine is already behind the times; a lot of your batch files are just repeats of past programs in one way or another. *DOS World* will have to make the change; if it doesn't, it will die a slow death.

Herbert E. Jackson
Danvers, Massachusetts

Contributors

for September 1996

Contributing Editor and columnist **Hardin Brothers** *(pages 14, 17, and 54)* has been writing about computers for more than 15 years.

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Eric Maloney *(pages 12 and 31)* and **Marilyn McMaster** *(pages 31, 38, and 45)* are *DOS World*'s editorial directors.

Josh Nossiter *(page 26)* is the author of *Using Excel for Windows 95* and is coauthor, with Eric Maloney, of *Using Word for Windows 95* (Que).

DOS WORLD

Tips from Readers

Short Stuff

If you'd like to get a list of all files in the current directory, including system and hidden files, you can do it the long way:

```
DIR /A
```

or the short way:

```
DIR,
```

This trick works in DOS 6.x and in DOS 6.x sessions run under Win3.1. It may also work in previous DOS versions, but it doesn't work in a DOS session run under Win95 or in DOS 95.

Bobby Gage
Internet

Good ERRORLEVEL Housekeeping

The ERRORLEVEL checks used in batch files are usually of two types. If the action you want to carry out is one line long, you use a command like this one:

```
IF ERRORLEVEL 3 IF NOT ERRORLEVEL
  4 DIR *.BAT
```

If the code following the check involves several commands, batch-file programmers typically use a GOTO statement and a follow-up "subroutine":

```
IF ERRORLEVEL 3 IF NOT
  ERRORLEVEL 4 GOTO MORE
.
.
:MORE
command1
command2
command3
```

Unfortunately, if you have to test for several ERRORLEVEL values, the number of GOTO statements increases, and the batch file's logic becomes harder to follow. In this situation, I prefer to stack ERRORLEVEL checks and eliminate GOTO statements entirely:

```
IF ERRORLEVEL 4 . . .
IF ERRORLEVEL 3 IF NOT ERRORLEVEL
  4 CD\DOSWORLD
IF ERRORLEVEL 3 IF NOT ERRORLEVEL
  4 CALL DOSWORLD.COM
IF ERRORLEVEL 3 IF NOT ERRORLEVEL
  4 CD\BAT
IF ERRORLEVEL 2 . . .
```

In addition to simplifying logical flow, this technique speeds program execution, because when the batch processor encounters a GOTO, it begins its search for the correct label at the top of the batch file. No GOTO means no searching and faster processing.

Glynn Richardson
Internet

Switch Hitting

If you're prone to cramps in your mousing hand, try switching your mouse buttons around.

If you're right-handed, for example, swapping makes the right mouse button the primary one. That way, you can lay your hand across the mouse diagonally, while resting your palm on the mouse itself for support. It shouldn't take you long to get used to the new position.

To find the mouse controls in Win3.1, open the Main program group; choose Control Panel, then Mouse. If you work only in DOS, refer to your mouse's software to find out how to swap the buttons.

Rob Heim
Internet

This trick may help folks who use Windows 3.1 or a DOS-based program that relies heavily on one mouse button, but it probably won't do much for Win95 users. The most recent Windows release requires you to make frequent use of both the left and right mouse buttons, so switching them may not do much to ease cramping. Even after switching buttons, you'll still have to do a lot of unsupported reaching.

—Eds.

Quick-Change Artistry

Even if you prefer working at the DOS prompt, you probably realize that your mouse does some things better than your keyboard. Changing directories is one of them, especially when you must type a long directory path after a CD command.

An easier way to switch to a different directory is to type DOSSHELL, press Enter, click on the name of the directory to which you want to change, and click on the File menu's Exit option. You'll find yourself back at the DOS prompt in the new directory. If the subdirectory you want isn't displayed in DOSSHELL's tree, you can view a lower directory level by clicking on an icon containing a plus sign.

Richard Penn
Montreal, Quebec
Canada

Two for Win

I have a couple of Windows 3.1 tips to share. First, if you want to know what time it is when Win3.1 first comes up, try putting a copy of Windows' Clock into your StartUp group. To do that, open your Accessories and StartUp groups, and press the Ctrl key while dragging a copy of Clock from Accessories to StartUp. Then, with Clock highlighted, press Alt+ Enter and check the Run Minimized option.

After that, whenever you start Win3.1, the clock icon will appear near the bottom-left corner of your screen, and you'll be able to tell see the time and date at a glance. (Note that if you don't have a StartUp group, you may create one simply by choosing File/New/Group in Program Manager and naming the new group `StartUp`.)

Another trick I use is setting up a Recycle Bin work-alike for Windows 3.1. Just create a new program group called Trash or Recycling. Instead of deleting files and programs when you no longer need them, drag them into the new group. When you're sure you don't need a file anymore, highlight it, press the Del key, and answer yes when Windows 3.1 asks whether you're sure.

Rob Frye
Napa, California

We can see one problem with creating your own Recycle Bin in Windows 3.1: You might tie up a lot of space on your hard-disk drive if you don't empty the trash periodically. Windows 95, on the other hand, selectively purges its Recycle Bin automatically.

In addition, if your AUTOEXEC.BAT *contains the command* UNDELETE /S, *you already have the equivalent of a Recyling Bin. This command activates DOS's Delete Sentry feature, which tucks away recently removed files with an eye toward helping you restore any files you erase by mistake.*

To provide this protection, DOS creates the hidden directory called C:\SENTRY. *When you delete a file, the memory-resident portion of the* UNDELETE *command moves a copy of the file into* \SENTRY. *As you delete files, the hidden directory fills up. When the directory's contents are older than seven days or exceed about 7 percent of the hard disk's total capacity, the oldest files are purged.*

If you don't shut off your computer periodically, Delete Sentry won't have the opportunity to check the age of your deleted files, and \SENTRY *will fill up. You may waste valuable disk space if* \SENTRY *is packed with deleted files and you also have a full Recycle Bin group.*

Of course, you can purge \SENTRY, *expunging all files or only certain files, by picking Windows' Undelete option, then choosing File / Purge Delete Sentry File. If you prefer to work from DOS, type* `UNDELETE /PURGE` *to empty the entire directory.*
—Eds.

Shift into Action

Right-clicking isn't the only great efficiency boost in Win95; the Shift key can also help. Try these tricks:

- Hold down Shift while you delete a file. This erases the file, preventing it from being sent to the Recycle Bin. The downside of this, of course, is that unless you have a special file-recovery program you can't resurrect a file erased with Shift+Del.
- Press Shift while double-clicking on My Computer or Network Neighborhood to open these items in the dual-pane Explorer view.
- Hold down the Shift key while double-clicking on any folder. This also opens Windows 95's Explorer.
- Press Ctrl+Esc, U and select Restart the Computer. Then hold down Shift while clicking on the Yes button in the Shut Down dialog box. This restarts Windows without forcing you to completely reboot. I use this option when I want to activate a change made in Win95.
- Hold down Shift while right-clicking on an icon. The Open With option appears on the shortcut menu; it lets you open a file using a program other than the one you normally would. For example, you can open a DOC file in Notepad rather than in Microsoft Word.

The Alt key isn't nearly as versatile as Shift, but I've found one helpful trick:

- To get quick access to a file's properties, hold down the Alt key while double-clicking on a filename. For me, this is quicker than highlighting a filename, pressing Alt+Enter, and choosing Properties from the displayed menu.

Imran Ahmed
Internet

***Submit tips on disk to* DOS World,**
86 Elm St., Peterborough, NH 03458,
or electronically via CompuServe (75300,2357),
the Internet (75300.2357@compuserve.com),
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DOS WORLD

Best of the Batch

The Numbers Game

One of the most-basic functions in high-level programming is the random-number generator. Programmers call on its services for many reasons—including deciding which tip to display when a user loads Microsoft Word, for example, as well as shuffling an electronic deck of cards in a game of solitaire.

Writing a DOS batch file to produce random numbers without resorting to an advanced programming language is a challenge—but you can do it, using something as simple as the current time. **Listing 1**, RNDNUM.BAT (below), shows you how. RNDNUM.BAT picks a number between zero and 9; although the number isn't truly random, it's good enough for many common purposes, such as displaying a random message when you start your computer.

You can even use RNDNUM.BAT to create a simple guessing game, such as the one demonstrated in **Listing 2**, GAME.BAT (opposite). RNDNUM.BAT uses the FOR...IN...DO slash to parse strings (see "A Batch-File Breakthrough," *DOS World* #19, January 1995, page 36, for more information); it won't work, therefore, with the Windows 95 version of MS-DOS.

The first step is to extract the current time from the system. The fourth line of RNDNUM.BAT is as follows:

```
ECHO. | TIME | FIND "Current" >T$$$.BAT
```

This line pipes a carriage return to the TIME command, whose output is piped to the FIND command. By redirecting the output, RNDNUM.BAT creates a batch file called T$$$.BAT, containing one line:

```
Current time is  4:11:10.75p
```

Lines 5 through 13 use ECHO statements to create CURRENT.BAT, which generates a random number. Note that some lines of RNDNUM.BAT use four percent signs to ensure that lines sent to CURRENT.BAT contain two percent signs. Similarly, where RNDNUM.BAT shows two percent signs, CURRENT.BAT will contain only one.

Once it creates CURRENT.BAT, RNDNUM.BAT calls T$$$.BAT in line 14. T$$$.BAT in turn runs CURRENT.BAT and passes *time*, *is*, and the time to CURRENT.BAT as parameters.

CURRENT.BAT's job is to get rid of everything in the time expression except the hundredths digit. It uses the FOR...IN...DO slash technique to discard the hours, minutes, seconds, and tenths of seconds. The beauty of this trick is that CURRENT.BAT's recursion includes a built-in stop mechanism. When the loop senses an *a* or a *p* or *AM* or *PM*, respectively, it knows it should use the previous digit as the random number. This stop mechanism not only is handy, but also creates the best random numbers possible by using the hundredths digit, which changes most often.

When CURRENT.BAT chooses a random number, it saves that number

Listing 1. RNDNUM.BAT uses the current time to put a random number into an environment variable.

```
@ECHO OFF
REM RNDNUM will set the ENV variable RND to a random number based
  on the time
SET RTEMP=OFF
ECHO. | TIME | FIND "Current" >T$$$.BAT
ECHO SET RND=%%3 >CURRENT.BAT
ECHO :LOOP >>CURRENT.BAT
ECHO FOR %%%%a IN (/%%RND%%) DO IF %%%%a == a SET RTEMP=ON >>CURRENT.BAT
ECHO FOR %%%%a IN (/%%RND%%) DO IF %%%%a == p SET RTEMP=ON
  >>CURRENT.BAT
ECHO FOR %%%%a IN (/%%RND%%) DO IF NOT %%%%a == p IF NOT %%%%a ==
  a SET RND=%%%%a >>CURRENT.BAT
ECHO IF %%RTEMP%% == ON GOTO CONTINUE >>CURRENT.BAT
ECHO GOTO LOOP >>CURRENT.BAT
ECHO :CONTINUE >>CURRENT.BAT
ECHO SET RND=%%RND%% >>CURRENT.BAT
CALL T$$$.BAT
DEL CURRENT.BAT
DEL T$$$.BAT
ECHO Random number is %RND%
```

End

Listing 2. GAME.BAT is a simple guessing game that demonstrates how to use RNDNUM.BAT.

```
@ECHO OFF
REM GAME.BAT
CALL RNDNUM
ECHO %RND% > ANSWER
ECHO Enter a number guess, then press ^Z Enter to save.
COPY CON GUESS >NUL
FC ANSWER GUESS /W
```

End

in an environment variable; then RNDNUM.BAT deletes the temporary batch files T$$$.BAT and CURRENT.BAT.

GAME.BAT is a rudimentary batch file that demonstrates how to use RNDNUM.BAT. It asks you to guess a number from zero through 9. If your guess matches the correct answer, DOS's file-comparison utility, FC, reports that it finds no differences. If you guess wrong, FC displays the random number and your incorrect guess. Remove the last line of RNDNUM.BAT so that you don't reveal the answer.

—John Rusnak Jr.
Cambridge, Massachusetts

Capturing Input on the Fly

One of the DOS batch-file language's most frustrating limitations is its apparent inability to accept user input once a batch file starts running. For example, if you want to write a batch file that lets the user build an electronic Rolodex of names and phone numbers, he or she has to input the information at the command line, like so:

```
ROLOBAT [lastname] [firstname]
  [phonenumber]
```

The accompanying batch file, INPUT.BAT (see **Listing 3**, right), is a routine that lets users input data from within a batch file. It accepts a full line of text and loads it into an environment variable. You don't need to use COPY CON or DOS's Edit text processor, as other input techniques do.

The heart of INPUT.BAT is the fourth line, which starts with, of all things, DOS's FC (file comparison) command. At first glance, FC would seem to have little use for keyboard input. But the clever application of devices, switches, and piping turns FC into an input powerhouse.

Normally, you use FC to compare two files. For example, the following command:

```
FC TEXT.DOC TEXT2.DOC
```

compares TEXT.DOC with TEXT2.DOC and displays the lines that differ. In INPUT.BAT, however, FC compares input from the keyboard (CON) with the NUL device. The switch /LB1 restricts FC's buffer to a single line. The second switch, /N, puts a line number in front of the display.

To see how this technique works, type the following line at the DOS prompt:

```
FC CON NUL /LB1 /N
```

The message "Comparing files CON and NUL" appears. Now type the word `hello` and press the Enter key. You'll get a display that looks something like this:

```
Resync failed. Files are too different
****** CON
    1: hello
****** NUL
******
```

text continues on page 13

Listing 3. INPUT.BAT demonstrates a technique for accepting user input from within a batch file.

```
@ECHO OFF
SET INPUT=
ECHO Type in anything and press Enter
FC CON NUL /LB1 /N|DATE|FIND "    1:  ">TEMPTEMP.BAT
ECHO :LOOP>>ENTER.BAT
ECHO IF NOT (%%INPUT%%)==() SET INPUT=%%INPUT%% %%5>>ENTER.BAT
ECHO IF (%%INPUT%%)==() SET INPUT=%%5>>ENTER.BAT
ECHO IF (%%INPUT%%)==() SET INPUT=%%5>>ENTER.BAT
ECHO SHIFT>>ENTER.BAT
ECHO IF NOT (%%5)==() GOTO LOOP>>ENTER.BAT
FOR %%X IN (CALL DEL) DO %%X TEMPTEMP.BAT
DEL ENTER.BAT
ECHO The string you just entered
ECHO %INPUT%
ECHO has been stored in environment variable INPUT
ECHO %INPUT%>>NOTES.TXT
:END
```

End

A MEASURE OF SECURITY

INPUT.BAT's usefulness in designing other DOS utilities is limited only by your imagination. To get your creative juices flowing, here are two batch files that demonstrate possible applications: LOG.BAT and PASSWORD.BAT.

LOG.BAT (**Listing 4**, below) is a program that creates user login and logout information for a program or shell. It starts by using INPUT.BAT to capture a login name. It then records the login name, time, and date in a file called LOG.DAT. When it's done with the input routine, it runs DOSSHELL. When the user exits DOSSHELL, LOG.BAT records the logout time and date. (You can replace DOSSHELL with any shell or menu program.)

Tracking logins and logouts is a common and essential task in many workplaces. If several people in your office share a computer and you need to monitor their system use (to record billable hours, for example), LOG.BAT can do the job. You also might find it ideal for tracking use of a specific program, such as a communications package or a database manager.

The second batch file, PASSWORD.BAT (**Listing 5**, opposite), provides low-level password protection for your system. To use it, you must create a password subdirectory and a password file. First, create a directory called \PASSWORD from your root directory. In the \PASSWORD subdirectory, create a file whose name is your password. For example, if your password is ICECREAM, type this at the command prompt:

```
REM>ICECREAM
```

The password is restricted to eight letters and must follow the standard naming conventions for DOS filenames. If you need passwords for several users, create a file for each person.

You can hide the file and the directory with ATTRIB. For example, to hide the ICECREAM file, type the following:

```
ATTRIB ICECREAM +H
```

Then go to the root directory and type this:

```
ATTRIB PASSWORD +H
```

PASSWORD.BAT starts by running a third-party utility called CONTRL.COM, which disables Ctrl+C and Ctrl+Break. CONTRL.COM adds a level of protection to PASSWORD.BAT, but the program runs fine without it. CONTRL.COM is available on the *DOS World* BBS (File Area 5; dialing instructions on page 64).

The program next uses INPUT.BAT to prompt the user for a password and assign the password to the %INPUT% environment variable. It then checks for the existence of wildcard characters (* and ?) in the string. This step is necessary because PASSWORD.BAT would otherwise interpret some wildcard combinations as valid passwords.

An IF EXIST statement then determines whether the value of %INPUT% also exists as a filename in the PASSWORD directory. If so, the batch file jumps to END, which reenables Ctrl+C and Ctrl+Break. If not, PASSWORD.BAT starts a counter and prompts the user to try again. After three unsuccessful tries, the batch file drops to the FAILED subroutine, which puts the user into an endless loop.

The best way to use PASSWORD.BAT is to call it from AUTOEXEC.BAT. Run CONTRL.COM from the first line of AUTOEXEC.BAT, and call PASSWORD.BAT from the second line.

This batch file is far from foolproof. A savvy user can still boot from a floppy disk or break out of PASSWORD.BAT by pressing Alt+3. (Use the 3 on the numeric keypad.) Still, PASSWORD.BAT will thwart casual snoopers and send them the message that your computer is off limits.

—Eric Maloney

Listing 4. LOG.BAT uses INPUT.BAT to create a file that tracks logins and logouts.

```
@ECHO OFF
SET INPUT=
ECHO Input your initials:
FC CON NUL /LB1 /N|DATE|FIND "    1:  ">TEMPTEMP.BAT
ECHO :LOOP>>ENTER.BAT
ECHO IF NOT (%%INPUT%%)==() SET INPUT=%%INPUT%% %%5>>ENTER.BAT
ECHO IF (%%INPUT%%)==() SET INPUT=%%5>>ENTER.BAT
ECHO SHIFT>>ENTER.BAT
ECHO IF NOT (%%5)==() GOTO LOOP>>ENTER.BAT
FOR %%X IN (CALL DEL) DO %%X TEMPTEMP.BAT
DEL ENTER.BAT
SET LOGINOUT=LOGIN
:SETDATE
ECHO SET DATE=%%3>TODAY.BAT
ECHO SET TIME=%%4>>TODAY.BAT
DIR TODAY.BAT|FIND "TODAY.BAT">SETTODAY.BAT
CALL SETTODAY.BAT
FOR %%A IN (SETTODAY.BAT TODAY.BAT) DO DEL %%A
ECHO %LOGINOUT%:     %INPUT%    %DATE%          %TIME%>>LOG.DAT
IF "%LOGINOUT%"=="LOGOUT" ECHO.>>LOG.DAT
SET DATE=
SET TIME=
IF "%LOGINOUT%"=="LOGOUT" GOTO END
EDIT
SET LOGINOUT=LOGOUT
GOTO SETDATE
:END
SET LOGINOUT=
SET INPUT=
```

End

Listing 5. PASSWORD.BAT is a security program that uses INPUT.BAT to let users enter a password.

```
@ECHO OFF
CLS
::Delete the following line if you don't have
    CONTRL.COM installed
CONTRL /BC>NUL
:START
SET INPUT=
ECHO Password:
FC CON NUL /LB1 /N|DATE|FIND "    1:  ">TEMPTEMP.BAT
ECHO :LOOP>>ENTER.BAT
ECHO IF NOT (%%INPUT%%)==() SET INPUT=%%INPUT%%
  %%5>>ENTER.BAT
ECHO IF (%%INPUT%%)==() SET INPUT=%%5>>ENTER.BAT
ECHO IF (%%INPUT%%)==() SET
INPUT=%%5>>ENTER.BAT
ECHO SHIFT>>ENTER.BAT
ECHO IF NOT (%%5)==() GOTO LOOP>>ENTER.BAT
FOR %%X IN (CALL DEL) DO %%X TEMPTEMP.BAT
DEL ENTER.BAT
::Check for wildcards (* and ?) in password
FOR %%A IN (%INPUT%) DO IF "%%A"=="%INPUT%" GOTO
  CHECKFORFILE
GOTO ERROR
::Check for existence of file
:CHECKFORFILE
IF EXIST C:\PASSWORD\%INPUT% GOTO END
:ERROR
SET COUNT=%COUNT%*
IF "%COUNT%"=="***" GOTO FAILED
CLS
ECHO Incorrect password. Try again.
GOTO START
:FAILED
CLS
ECHO You have not entered a valid password. Reboot
  and try again.
PAUSE>NUL
GOTO FAILED
:END
::Delete the following line if you don't have
    CONTRL.COM installed
CONTRL />NUL
SET COUNT=
SET INPUT=
```

End

Next, INPUT.BAT redirects this line to the DATE command. The reason may not be readily apparent; again, the best way to follow what's happening is to run the line from the DOS prompt. Each line of FC's output is redirected to DATE's "Enter new date" prompt, including the one that contains *hello*. FIND extracts this line and routes it to the file TEMPTEMP.BAT. The result is a batch file consisting of this one line:

```
Enter new date (mm-dd-yy): 1: hello
```

If you're an experienced batch filer, you know where this is going. Another batch file, ENTER.BAT, will process the data. The next few lines create the file with ECHO statements. ENTER.BAT looks like this:

```
:LOOP
IF NOT (%%INPUT%%)==() SET INPUT=%%INPUT%% %%5
IF (%%INPUT%%)==() SET INPUT=%%5
SHIFT
IF NOT (%%5)==() GOTO LOOP
```

After INPUT.BAT creates ENTER.BAT:

1. INPUT.BAT calls TEMPTEMP.BAT.
2. TEMPTEMP.BAT runs ENTER.BAT.
3. ENTER.BAT sets the environment variable %INPUT% to the value contained in the parameter %5—in this example, *hello*.
4. ENTER.BAT then returns control to INPUT.BAT, which deletes TEMPTEMP.BAT and ENTER.BAT.

ENTER.BAT uses a loop and the SHIFT command to accommodate strings consisting of more than one word.

This technique was created by Vernon Frazee and comes from FIDOnet.

Larry Nelson
Seattle, Washington

Do you have a batch file that's particularly interesting, unique, or useful? Do you have an alternative to one of the batch files you see here? Then why not share it with your fellow **DOS World** *readers and get $50 to boot? Send your submission to "Best of the Batch,"* **DOS World***, 86 Elm St., Peterborough, NH 03458. Include a description of the batch file and how to use it, along with a disk containing the program. You can also send your batch file to our CompuServe address (75300,2357), our Internet address (75300.2357@compuserve.com) or the* **DOS World** *BBS (603-924-3181; 8,N,1). However you send it, please include your address (postal and e-mail) and phone number on all submitted material and in the batch file.*

DOS WORLD

Reader Forum

by Hardin Brothers

Keeping the Peace

I have a couple of strange files on my hard drive in the root directory: WP ROOT. SF *and* EA DATA. SF*. Each filename contains two spaces. These files are on my home computer, a 66MHz Pentium running DOS 6.22. I also have OS/2 Warp Full Pack. Should I keep these files around?*

Ken Legrow
DOS World *BBS*

Treat your system's WP ROOT. SF and EA DATA. SF files with care; OS/2 needs them for its operation.

You don't say so, but I'm assuming that both files are marked as hidden, system files. If they aren't, use the command ATTRIB +S+H to give these files the proper attributes.

> *In my opinion, OS/2 Warp is excellent. But whenever you have two or more operating systems, avoiding conflicts between them is always a concern.*

The WP ROOT file contains information about your workplace shell, OS/2's graphical user interface; the EA DATA file contains "extended attribute" information, including long-filename data, about each file on the drive that OS/2 has created, modified, or copied. OS/2 creates a separate file called EA DATA. SF on each FAT (DOS-style) partition or hard-drive volume as needed.

One of the difficulties of using OS/2 and DOS on the same partition is keeping the extended-attribute information up to date. If you boot into DOS instead of OS/2, you're liable to change or delete files to which EA DATA refers. The next time you boot your computer into OS/2, that information will be incorrect, and the file system will be corrupted.

You can take a few precautions to avoid this problem:

1. Always boot into OS/2 and run DOS and Windows applications within it. If you do so, OS/2 will keep the information in EA DATA up to date.
2. Always run OS/2's CHKDSK as part of its boot-up routine. CHKDSK will fix problems in EA DATA.
3. Put OS/2 and all files you use with it into a separate partition.

In my opinion, OS/2 Warp is an excellent operating system; it's one of the three OSes I use on my own computer. (Also see "Warp Speed for DOS," by Stan Miastkowski, *DOS World* #22, July 1995, page 48, for additional information.) But keep in mind that whenever your computer has two or more operating systems, avoiding conflicts between them is always a concern.

For example, if you use an older version of DOS and Win95 on one computer, you have to be careful if you want to use the same files with both operating systems. If you boot up with DOS 6.22 or earlier and then move, copy, or delete files with Win95-style long filenames, you'll break the connection between the file and its long-filename information. The next time you boot with Windows 95, you'll still be able to find the file and use it (if you know its DOS-style name), but the long filename and any extra information attached to the file will be lost. (See "The Rules of the Name," by Eric Maloney, *DOS World* Special Issue #9, June 1996, page 34, for details.)

Here's the Word

I recently received a Packard Bell computer as a gift. When it boots up, I see the message "Press F1 for setup." When I follow this advice, I see a screen that asks for my password. I've never typed in a password on this computer. How can I find out what it is so that I can delete it?

Jeanne Rooney
DOS World *BBS*

Your computer's setup password resides in the machine's battery-powered CMOS memory, along with settings for various devices, such as hard disks and CD-ROM drives. Your computer can read from or write to any byte in CMOS memory, provided you have a program that knows how to do so. If you knew exactly where the password is stored and how to write to CMOS memory, you could create a program to erase the problem password.

Luckily, there's an easier solution: Unplug the computer, open the case, find the battery, and disconnect it overnight. When you reconnect the battery, everything in CMOS memory, including the password, will have been erased.

Note that you'll have to rebuild the settings by running your machine's setup program before you can boot your computer, unless your computer model is smart enough to determine appropriate default settings for itself.

Assuming that you know the proper settings for your hard drive, memory configuration, and other options, erasing the CMOS memory doesn't pose any danger. If you don't know what your CMOS settings are, save the current contents of CMOS memory before you try any of this.

One program that seems to be able to save and restore most computers' CMOS settings is the shareware title CMOSSAVE. You can find a copy of it on the *DOS World* BBS (see page 64 for dialing information); its filename is CMOSSV25.ZIP, in File Area 5.

Unlocking WordPerfect's Secrets

I'm trying to access a document created with WordPerfect 5.1. It was saved with a password, which the user has now forgotten. Is there any utility that will decrypt the document without the password?

Tom Keller
DOS World *BBS*

I've never used WordPerfect's password protection, so I'm relying on others who have. According to my sources, you're lucky that your document was created with WordPerfect 5.1, because you can recover both the password and the document itself pretty easily. My understanding is that the protection scheme used in version 5.x and earlier (for both DOS and Windows) is easy to crack. WordPerfect 6, however, uses a much more secure technique.

I've uploaded two files to the *DOS World* BBS that should help you. (See page 64 for dialing instructions.) The first, a shareware offering called WPCRAK.ZIP (File Area 8), is a Windows program that will read your protected file and attempt to deduce the password. If it succeeds, you can then use the password to open the document in WordPerfect.

Using WPCRAK is easy, and it's generally successful. I understand that there's a similar program that runs under DOS instead of Windows, but I couldn't find a copy.

The second file, UNCRYPT.ZIP (File Area 5), is for folks who are curious about WordPerfect 5.x's protection technique or who don't want to use the WPCRAK program. This paper, written by Helen Bergen of Queensland University, Australia, in 1990, explains the WordPerfect encryption system and how to decipher a password. It also explains how to use the password to decrypt the entire file if you no longer have a copy of WordPerfect on your computer.

To use Helen Bergen's system, you must know a little about Debug and about decryption. If you find her paper confusing, you probably can get help from a programmer in your own office, a local consultant, or a computer-science student from a nearby university. With the proper skills, it should take only a few minutes to unscramble the password in any WordPerfect 5.1 file.

Print Capture

I have several DOS programs that don't include a print-to-file option, and I'd like to get that capability. The only way I can think of is writing a device driver and then using the PRINT *command with the argument* /D:. *Do you know of an easier way?*

Tim Steward
DOS World *BBS*

If you're using Win95, redirecting a DOS printout to a file is simple. Locate your printer in the \PRINTERS folder, which is accessible from My Computer or Control Panel. Right-click on the printer's icon and select Properties. On the Details tab, change the output path to print to a file instead of to your printer port; then select Port Settings and make sure the option Spool MS-DOS Print Jobs is checked. Until you change the print destination back to your printer port, your system will send all Windows and DOS output to the specified file.

If you aren't using Windows 95, capturing printer output from a DOS application is more difficult. The *DOS World* BBS, however, offers a shareware program called VPRINT51.ZIP (for *virtual printer*) that may help you. (It's in File Area 5; see page 64 for dialing instructions.) It captures data sent to your printer and redirects that data to a disk file.

VPRINT should work well with most DOS applications. It requires a few minutes to learn, but you may want to write a batch file or two to automate it. Like other similar programs, VPRINT works by monitoring commands that applications send to the printer via DOS or the computer's BIOS.

There's one possible glitch, though: A few applications send data directly to your system's printer ports. As far as I know, there's no way to capture output from such ill-behaved applications if you work only in DOS. On Intel-based computers, you may intercept hardware access, but only if you're using a protected-mode operating system, such as Windows 95 or OS/2.

Greetings from Win95

Can you suggest an effective way to either eliminate or change the graphics for Windows 95's opening and closing screens?

Henry H. Hill
Halifax, Nova Scotia
Canada

Got a burning question regarding DOS or Windows computing?

PERHAPS WE CAN HELP.

Send your problems and puzzlers to "Reader Forum," DOS World, 86 Elm Street, Peterborough, NH 03458. Or drop us a line on CompuServe (75300,2357), the Internet (75300.2357@compuserve.com), or the DOS World BBS (603-924-3181). Unfortunately, owing to the volume of mail we receive, we can't guarantee a response to every question.

Win95's opening graphics are controlled by an entry in a file called MSDOS.SYS, which resides in the root directory of your boot drive. To disable the opening graphics completely (which you must do to make Win95 compatible with some third-party memory managers), take these steps:

1. Start Windows' Explorer. (One way to do that is by right-clicking on the Start button and choosing the Explore option.)
2. Open the View menu and pick Options. Make sure the first option button, Show All Files, is checked.
3. Find MSDOS.SYS in the root folder of your boot drive. Unless you're using a disk-compression program that swaps drive names as it boots, you'll probably find MSDOS.SYS in C:\.
4. Highlight MSDOS.SYS and then pick the File/Open With option.
5. Choose Notepad from the list of possible applications. Notepad will then open the MSDOS.SYS file for editing.
6. In the [OPTIONS] section of the file, add this line:

```
Logo=0
```

(If the MSDOS.SYS file already contains the command LOGO=1, change the 1 to a zero.)

7. Save the file and exit from Notepad.

Thereafter, whenever you shut down and reboot your computer, Windows 95 should start without its opening graphics.

If you want to change the graphics, that's also easy to do, because all three Windows logos are standard bit-mapped (BMP) files. Keep these important restrictions in mind, though: Each image must be 320 pixels wide and 400 pixels high, and you must save the images in 256-color BMP format. If you use Windows 95's Paint to create new opening and closing graphics, the quickest approach is to load one of the default screens into Paint and use it as a template for your new screen.

But first, make copies of LOGO.SYS, the image you see when Windows 95 starts; LOGOW.SYS, the one you see while Windows 95 is shutting down; and LOGOS.SYS, the one that tells you it's safe to turn off your computer. You'll find LOGO.SYS in your root folder (probably C:\); the other two files are in your Windows 95 folder.

A word to the wise: Be sure to store your copies of these files in another folder or on a floppy disk. That way, if you make a mistake, you can always start again with the original files.

After creating each new screen, simply save it under the appropriate filename (LOGO.SYS, LOGOW.SYS, or LOGOS.SYS) and store it in your root folder. ■

DOS WORLD

Shareware Exchange

by Hardin Brothers

I have a friend who spends his free time downloading shareware from BBSes and the Internet. He has five zip-drive disks chock full of these programs—about a half gigabyte's worth. He argues that the value of the programs far outweighs the cost of the disks to store them.

Well, I think my friend's missed the boat. For less than the cost of one empty zip drive, I have more than 600MB of shareware from some of the best authors around. In this issue, I'd like to tell you about this treasure trove of shareware, how to get it, and what it contains. Next time, I'll return to this column's usual format of sharing software that you and other readers have sent in.

The four individual programs discussed here (though not the entire contents of the ASP CD-ROM) are also available from the *DOS World* bulletin-board system (603-924-3181). (See the sidebar, "Share the Wealth," page 18, and the "*DOS World* BBS" section of "How to Use This Magazine," page 64 in this issue, for details on accessing the bulletin board. Registration fees are listed in "Product Information," page 20.)

> *For less than the cost of one empty zip drive, you can have more than 600MB of shareware from some of the best authors around.*

Window Shopping

One of the most prestigious trade groups for shareware authors, publishers, and vendors is the **Association of Shareware Professionals** (ASP). If you try more than one or two shareware programs a year, you've certainly seen this organization's logo, along with information about the group and its ombudsman program. This material is included in many products' printed and on-line manuals.

The ASP's catalogue of the shareware produced by its members is more than 700 pages long. I haven't counted the number of programs listed, but I'm sure it tops 6000. Many people who collect shareware download the catalogue, pore over it to find programs that sound interesting, and then search for those programs on line. When I find a shareware program I like, I also use the catalogue to find out what other programs the same author has written.

But downloading all those programs is boring and potentially expensive if you pay for on-line time or long-distance phone charges. It would be a lot more fun to have the programs available next to your computer. Then you could try them, decide which you want to register, and ignore the rest.

The ASP now helps you do just that. The new **ASP CD-ROM** contains more than 600MB of compressed software, along with a browser and, in case you don't already have it, the master catalogue.

On the CD-ROM, you'll find more than 1600 shareware programs. The browser (both Windows and DOS versions are included; see **Photo 1**, page 19) lets you view lists of programs. When you select a program, another screen appears with information and a short description of that offering. A button on that screen presents a longer, more complete description. The browser also lets you install any program on your hard disk.

The browser's handiest feature is that it lets you view either a complete or partial list; you can decide to restrict the list to DOS, Windows, Windows 95, OS/2, or Macintosh programs. (The release I received contained no Macintosh programs and only a handful for OS/2.) You can also choose to view all programs or just new ones released since the last CD-ROM. And you can create lists of programs by category: Utilities, Writing, Spreadsheets, Database and Database Information, Communications, Games, Engineering, Mathematics, Programming, Home and Hobby, Education, Financial, Business, Graphics, and Religion and Philosophy. Each category includes several subcategories as well. If you still can't find what you're looking for, the browser includes a search function that finds key words in each program's description.

Digging In

Once you get used to the browser program, it's time to start exploring the software. I'll focus here on a few of the many programs that immediately captured my attention.

SHARE THE WEALTH

Our "Shareware Exchange" column invites you to send a copy of your favorite shareware program on disk, along with a description and an explanation of why you like it (no more than 500 words) to Shareware Editor, *DOS World*, 86 Elm Street, Peterborough, NH 03458. Tell us how we can obtain a copy of the program. We'll select a pick of the month for each issue and pay the contributor $50. Other contributors will receive a $10 finder's fee. Please don't send us shareware you've written yourself; we prefer recommendations from users, not authors.

When you send in a program for consideration, make sure it's either shareware or freeware. I've received several submissions that were neither. We publish all programs mentioned here on the *DOS World* BBS, and we can't do that unless the program includes distribution information and instructions. Please don't send registered versions of programs; we can't publish those. Send only shareware and freeware versions.

Finally, either send us the latest shareware or freeware version available or tell us where we can get it. You can help us if you contact the program's distributor and tell him or her that you're sending a program, along with your recommendation, to us. If a distributor wants to get in touch with me, you can give him or her my e-mail address: **hardin@rt66.com**. But please don't send submissions to that address; send them directly to the magazine.

Contact us on CompuServe at **75300,2357**; on the Internet at **75300.2357@compuserve.com**; or on the *DOS World* BBS at **603-924-3181**. All programs featured in "Shareware Exchange" are available by modem from the *DOS World* BBS (instructions on page 64). File Finder/Grouper (FFG202.ZIP) is in File Area 5; ASCIIConvert (ASCIIC13.ZIP) and AMF Daily Planner (WPIM.ZIP) are in File Area 7; and Easy Base (EB103.ZIP) is in File Area 2. In addition, most of the programs described in "Shareware Exchange" can be found on major on-line services and local BBSes.

—H.B.

I started in the utility category. A program called **File Finder/Grouper** (FFG) caught my eye because I couldn't imagine why the world needed another search program. Improvements in DOS's DIR command, additional DIR functions in 4DOS/NDOS, and the search utilities included in DOS Shell, Win3.1's File Manager, and Win95's Explorer all seemed to relegate file finders to the company of old-fashioned roller-skate keys: quaint, curious, but useless in today's world.

I installed FFG on my hard drive in less than a minute and ran a couple of its demos. I quickly found out how wrong I was. No matter what file finder you're using, FFG is more powerful and probably faster. For example, I asked it to search all of my hard drive volumes (C: through H:) but not my CD-ROM drive (I:) for batch files. The command I needed was as follows:

```
FFG *I:*.BAT
```

In eight seconds, FFG told me that I had 314 batch files in 79 directories on my 2GB-plus hard drives. Those files totaled 255K and used 2.5MB of hard-drive space. FFG also figured out that it shouldn't search volumes created by SUBST and that I wasn't interested in searching the floppy drives.

That was pretty impressive. Next, I looked for all files containing my first name, again on all hard-drive volumes:

```
FFG *I:* /$Hardin
```

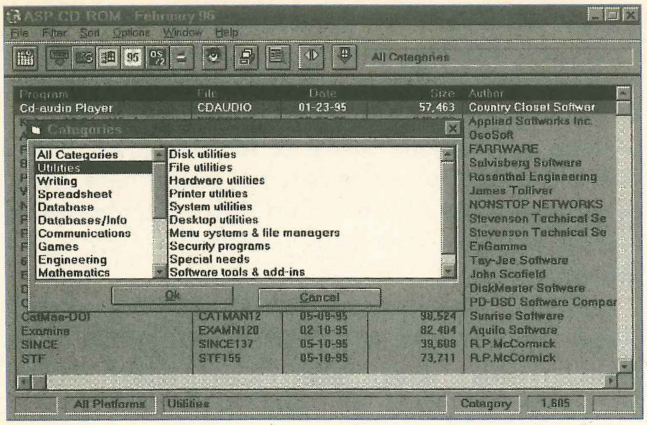
After 12 minutes, FFG reported that it had searched almost 18,000 files in 862 directories. It produced a list of 855 files in 161 directories containing my name.

FFG can also search by time, date, attributes, and the attributes of directories containing files. You can tell it to send lists of files to your printer or a text file, or to run other programs or DOS commands for each found file, with or without prompting. Its wildcard syntax is much more flexible than DOS's. For example, the following command:

```
FFG *:*mouse*
```

will find all files containing MOUSE anywhere in their names. And if you want to find all README files (which are sometimes called README.TXT, README.1ST, or simply READ.ME), you can do so with just a single command:

```
FFG *:*read*me*
```



Program	File	Date	Size	Author
Cd-audio Player	CDAUDIO	01-23-95	57,463	Country Closet Softwar
				Applied Softworks Inc.
				OsoSoft
				FARRWARE
				Salvisberg Software
				Rosenthal Engineering
				James Tolliver
				NONSTOP NETWORKS
				Stevenson Technical Se
				Stevenson Technical Se
				EnGamma
				Tay-Jee Software
				John Scofield
				DiskMaster Software
				PD-DSD Software Compar
CatMan-DOI	CATMAN12	05-09-95	98,524	Sunrise Software
Examine	EXAMN120	02-10-95	82,404	Aquila Software
SINCE	SINCE137	05-10-95	39,608	R.P.McCormick
STF	STF155	05-10-95	73,711	R.P.McCormick

Photo 1. The ASP CD-ROM includes more than 1600 shareware programs, conveniently categorized and easy to install.

(I found I had 185 of those sitting around in various directories.) For only $15, FFG is an amazingly powerful program.

Managing Files

While I was testing FFG, a friend called. He was trying to work with some ASCII database files, but he was having problems. Some of the fields were quoted; some weren't. He needed to remove some fields from each line and change the order of others. Also, he said he might have to switch between fixed-width and comma-delimited formats. Could I write a program to help?

Before I fired up a text editor and a compiler, I took a quick look at the ASP CD-ROM. And there it was—a program that met his requirements exactly. **ASCIIConvert**, a Windows-based program, is quite good at manipulating any ASCII-format database files or long lists. You can use it to combine files, combine fields, enter fixed text in fields, change file formats, and perform a variety of other chores. And once you learn the program, you'll find it fairly easy to use. The only problem is that it isn't quite as intuitive as other Windows programs. Also, it insists on storing the results of its manipulations in a file called TEMP.TXT in its own directory, instead of in a file of your choice in the directory in which you're working.

But for special conversion problems, which pop up much more often than I like, ASCIIConvert is handy. And using it is certainly easier than trying to manipulate long lists of data in a word processor, a technique to which I've had to resort more than once.

More Databases

I found ASCIIConvert in Database Utilities. Another Database subcategory is Relational Database Managers. I wondered what it would hold. After all, most database managers cost hundreds of dollars. But I found several, the most interesting of which was a DOS-based program called **Easy Base**. (See **Photo 2**, below.)

EasyBase isn't going to replace FoxPro, Paradox, dBase, or any of the other top-name database managers for complex uses. But it's a good choice for small- and medium-sized projects. It's the kind of database manager that many people would label as semirelational: It can look up values in one table to fill in another, but it doesn't support all the complex relationships that many database programs do. On the other hand, it's easy to use and understand, and it includes a Basic-like programming language for automating a wide range of database procedures.

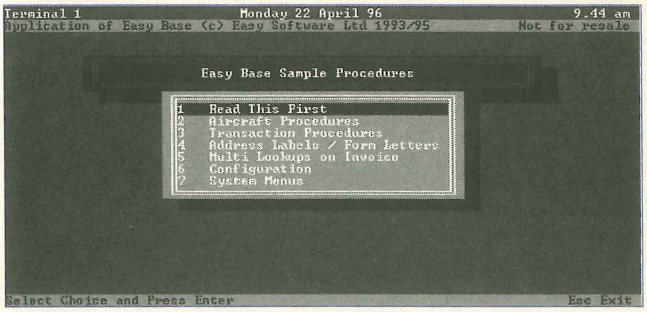
One of the demonstrations included with Easy Base is a full client-billing application. It shows how a company could develop a program to let workers record their hours on various projects. The database combines hours and hourly rates for each type of work to create and track invoices sent to clients. That's no trivial task, and Easy Base seems to handle it all without any problems.

If you're looking for a good shareware database program, one that can be used on a single computer or on a network, Easy Base is certainly worth considering. It easily surpasses many of the low-priced database managers on the market today.

Getting Organized

About once a month, I promise myself that I'm going to clean up my office, clear out my car, and organize my life. My resolution usually lasts about 30 minutes, until something more interesting distracts me and I let everything slide until the next attack.

Well, one of those "I'll get it all done today" feelings hit while I was browsing through ASP's shareware, so I installed a Windows program called **AMF Daily Planner and Personal Information Manager**. (See **Photo 3**, page 20.) It's an inexpensive shareware program, so I didn't expect a lot from it. A simple calendar and a phone book with dialer would have met my expectations. But I was pleasantly surprised: AMF Daily Planner is much more powerful than many low-cost commercial programs.



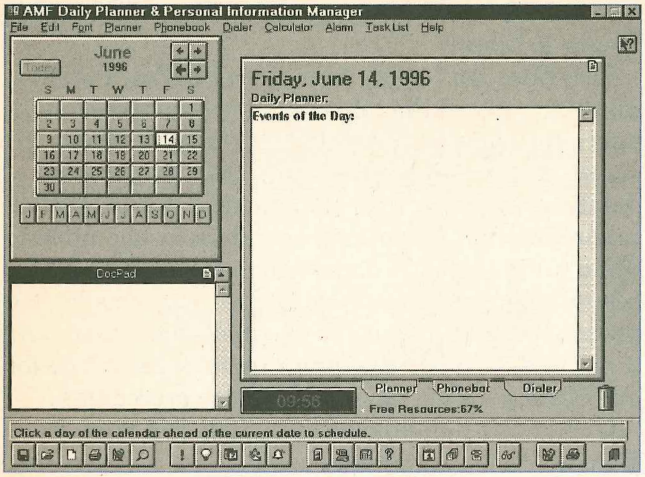
```
Terminal 1                         Monday 22 April 96                    9.44 am
Application of Easy Base (c) Easy Software Ltd 1993/95              Not for resale

                         Easy Base Sample Procedures

                    1    Read This First
                    2    Aircraft Procedures
                    3    Transaction Procedures
                    4    Address Labels / Form Letters
                    5    Multi Lookups on Invoice
                    6    Configuration
                    7    System Menus

Select Choice and Press Enter                                            Esc Exit
```

Photo 2. The DOS-based database manager Easy Base is a good choice for small- and medium-sized tasks.



Friday, June 14, 1996

Daily Planner:

Events of the Day:

Click a day of the calendar ahead of the current date to schedule.

Photo 3. AMF Daily Planner is loaded with features, including a text editor, phone dialer, and calculator.

This program offers so many features it's difficult to know where to start. Like almost all PIMs, AMF contains an address book—two books actually (Yellow Pages and White Pages). You can distribute names and addresses between the two books in any way you like, but the program expects that you'll use Yellow Pages for business contacts and names, and White Pages for personal contacts.

Each page can contain a great deal of information, including name, address, company, as many as five phone numbers, several address lines, an e-mail address, two custom fields, and a memo field. After you've filled in an address page, the program can automatically print an envelope, send a fax, or send e-mail to that address.

Note, however, that you'll need Delrina's WinFax 4.0 to send a fax automatically and WinCIM, the Windows version of CompuServe's Information Manager, to send e-mail automatically. You can use other fax and e-mail programs, but you'll need to add an extra step or two to do so.

The program also includes Doc Pad—a simple text editor—for writing business letters and memos. Click on a name in a phone book, and AMF automatically enters the name and salutation into Doc Pad in business-letter format.

Then for organizing your time, you've got AMF's calendar and to-do list. You can move through the calendar by day, month, and year. You can view your schedule a day at a time or a week at a time. You can set alarms to trigger at any time to remind you of appointments and tasks several days in advance (handy for birthdays, anniversaries, and other annual events) or several minutes beforehand (for important meetings and phone calls).

Add in a simple calculator, a phone dialer (separate from the program's phone books—this one just lets you dial an arbitrary number from the computer), and a number of other features. AMF Daily Planner really does offer most of the features of the more-expensive PIMs on the market without the cost or the complexity. You can search for tasks, for information in its phone books, or for almost anything else you need. You can import and export data, print personal address books and daily appointment sheets, and generally keep your life (or your boss's life) organized.

Picking a PIM is a little like picking a word processor. Once you get used to one, you probably won't want to change to any other. If you haven't settled yet on the PIM you'll be using for the next several years, give AMF a try. ■

PRODUCT INFORMATION

ASP CD-ROM
FormGen Inc.
16549 Geenway-Hayden Loop
Scottsdale, AZ 85260-1750
800-263-2390
905-857-4531 fax
74557.2034@compuserve.com
$14.95 plus $5 shipping
published monthly; soon to be available in retail stores

File Finder/Grouper 2.02
Thomas G. Vavoso
EnGamma
2407 Cameron Mills Road
Alexandria, VA 22302-3302
703-548-6869
71674.1747@compuserve.com
$15

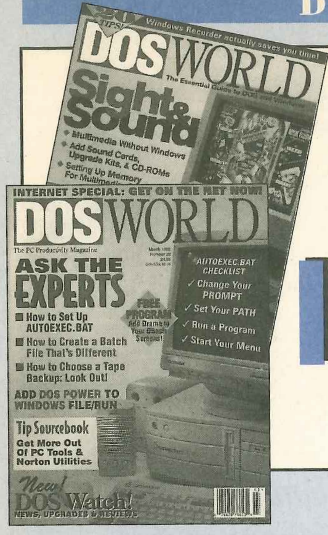
ASCIIConvert 1.3
Informatik Inc.
P.O. Box 868
Devon, PA 19333
$22.50 including shipping

EasyBase 1.03
Easy Software Ltd.
3 Brookside Court
Prestbury Road
Macclesfield
SK10 3BR
United Kingdom
+44-(0)1625-614669
100410.717@compuserve.com
$49 single-user version
$75 two-user version

AMF Daily Planner and
Personal Information Manager 5.1
Andrew M. Freeman
P.O. Box 189
Holbrook, NY 11741-0189
74250.1700@compuserve.com
$21.95
additional fees for printed manual and disks

THE COMPLETE DOS WORLD COLLECTION

BACK ISSUES ORDER FORM


Windows Recorder actually saves you time!
DOS WORLD
Sight & Sound
Multimedia Without Windows
Add Sound Cards, Upgrade Kits, & CD-ROMs
Setting Up Memory For Multimedia
INTERNET SPECIAL: GET ON THE NET NOW!
DOS WORLD
The PC Productivity Magazine
ASK THE EXPERTS
How to Set Up AUTOEXEC.BAT
How to Create a Batch File That's Different
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SHARING HARDWARE RESOURCES

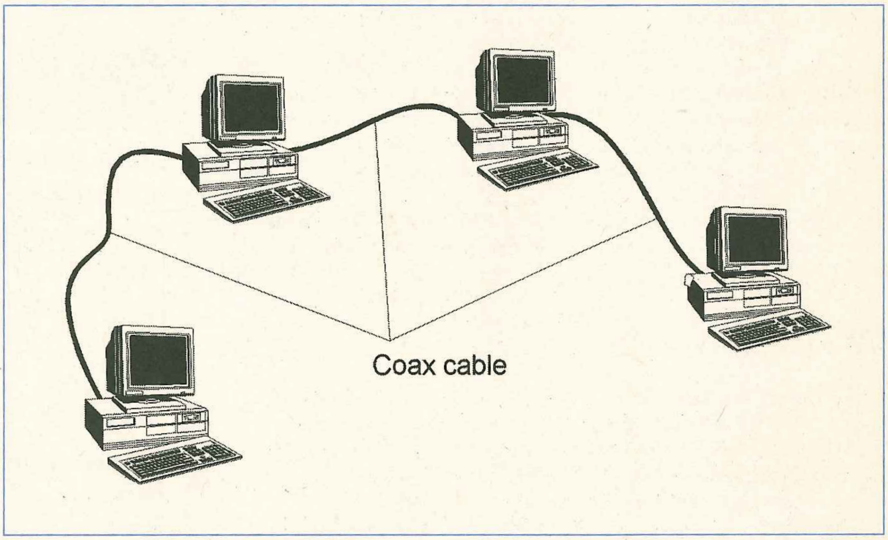
Networking For Everyone

Networks are no longer the domain of giant corporations only. Small companies, schools, and even home users are setting up simple, inexpensive networks to share printers, CD-ROM drives, hard disks, and other resources.

by Doug Lowe

The owner of a small insurance agency with three employees has just bought a fourth PC for the office. Although workers can use all four computers for their word-processing chores, the customer database is available on only one of the systems. Isn't there a way to access the customer database from the other three PCs?

- A small private school has just acquired five computers, but can afford only one decent printer. Isn't there a way to let students access the printer from any of the five PCs?
- A family has finally bought its second home computer, a multimedia Pentium with a whopping 1.2GB hard disk. The old 386, with its measly 100MB drive, has been relocated to the kids' room. Trouble is, the kids' machine has only a few megabytes of free space left, while the Pentium has more than 700MB available. Isn't there a way to access some of the new computer's disk space from the old computer?



Computers connected serially via coaxial cable. You can buy preassembled lengths, with connectors already installed. You'll also need a terminator plug for the computer at either end of the network.

The answer to all three of the above questions is a resounding *yes*. In each case, a simple and inexpensive network will solve the problem.

The good news is that the cost of networking cards has plummeted in the past year, so you can now set up a network for about $50 per computer. The bad news is that setting up a network, even a small one, requires a certain amount of fiddling around to get it to work—especially if you want to connect older computers to the network. The older the computer, the more likely you are to run into compatibility problems and configuration headaches.

Setting up a small network isn't rocket science, but you have to crack open your computer to install network cards, deal with cables and connectors, and contend with software that is sometimes harder to configure than it should be. If the thought of installing a network adapter card into your computer gives you hives, consider one of the simpler, though partial, solutions described in the accompanying sidebar, "Networking Without a Net" (below). Otherwise, roll up your sleeves and plow ahead.

What Can a Small Network Do?

A small network lets your computers share printers and disk drives. Thus, if you have four computers but just one printer, a network lets all four machines use the printer. If you keep an important database file on one of the computers' disk drives, a network lets you access the database from any of the other computers. Or, if two people are working together on a proposal, a network lets both users access a single shared copy of the document stored on one of the computers' disk drives. You can also access a program installed on another computer's hard drive.

A small network also lets users share a CD-ROM drive the same way they share a disk drive; you don't need any special hardware or software. Keep in mind, though, that a CD-ROM disc is removable, so there's no way to guarantee that the one you want to access will be in the drive when you need it. Problems will arise if one network user wants to look up a dictionary definition in the Microsoft Bookshelf CD while another person is searching through Cinemania to find a favorite video.

You can also share a modem (including a fax modem) on a network, but you'll need additional special software to do it. Other devices, such as sound cards and scanners, however, can't be shared. Nor does a network let one PC use another's memory. It would be nice if your 2MB 386 computer could access some of the RAM on your 16MB Pentium, but you can't share RAM. You can't share processor power, either; networking a 386 computer and a Pentium computer won't let the 386 "borrow" the Pentium's resources.

What Hardware Do I Need?

To build a small network, each computer needs a network adapter card. Although many types are available, most small networks use inexpensive Ethernet cards. If you shop around, you should be able to find them for less than $30 apiece. Bargain-basement cards probably aren't appropriate for a network connecting hundreds of computers, but for a home or small-office network with only a few systems, they work just fine.

Network cards come with instructions for installation and configuration, as well as software drivers you must install before you can use the cards. Be sure to follow all instructions carefully when plugging in the cards and setting up their software drivers.

What About Cable?

Yes, you'll also need cable. Ethernet cards work with one of two types: *coaxial*, similar to television cable, and *twisted-pair*, similar to phone wire. Use coax cable; it's easier to work with. Also, twisted-pair cable requires an additional component, called a *hub*, which costs about $100. You can buy coax cable in preassembled lengths (with connectors already attached) of 25, 50,

NETWORKING WITHOUT A NET

If you have only two computers and want to just share a file occasionally, or if you have no more than three or four computers and you just want to share a common printer, you may not need to mess with a network at all.

For file sharing, you can use any of several programs that let two computers communicate via their serial or parallel ports. Microsoft's MS-DOS 6.x includes such a program, called Interlink. (See "Sharing Resources with Interlink," *DOS World* #19, January 1995, page 23, for details.) Windows 95 includes an improved version of this feature, called *direct cable connection*, which lets two Win95 computers share files and printers via their serial or parallel ports.

These programs run much faster using parallel ports. To connect two computers this way, you need a special *bidirectional parallel cable*, which you can buy for about $15 at most computer-supply stores.

Parallel connection has three disadvantages. First, you can hook up only two computers. Second, they have to be near each other; the cable's only 8 feet long. Third, it's much slower than Ethernet.

If all you want to share is a printer and it's near your computers, you can buy a simple device that lets you switch the printer manually between computers. A switch that lets four computers share a printer costs about $50. For about $75, you can get a switch that automatically detects which computer is accessing the printer.

—D.L.

100, or 200 feet. A 25-foot cable assembly will set you back about $15. Although you can buy bulk cable and affix the connectors yourself, you'll need a special crimping tool—and even then the connectors are difficult to install properly. Get the preassembled cables.

Using coax cable, you can string your computers together from one to the next, as shown in the accompanying illustration (page 22). You'll need one cable fewer than the number of computers; for example, to network four computers, you'll need three cables. Of course, the length of each cable will depend on how far apart the computers are.

Coax cable attaches to your network cards via a T-connector. You'll also need special plugs called *terminators* for the computers at both ends of your network. Most network cards come with a T-connector and a terminator. If yours doesn't, you'll have to buy these components separately. (They should cost only a few dollars.)

Make sure your network cards are designated to work with coax cable. Note that Ethernet coax cable goes by several names: *Thinnet*, *10base2*, and *RG58* all refer to the same type of coax cable. Also, note that you can't use standard television cable to wire a network. It looks just like network cable, but it has different electrical characteristics that prevent it from working with computer networks.

What Software Do I Need?

By themselves, DOS and Windows 3.1 can't run on a network; you'll need special software. For small setups, the two most popular choices are Microsoft's network-ready versions of Windows (Windows for Workgroups and Windows 95) and Artisoft's LANtastic.

If all of the computers in your network run Windows, opt for Microsoft's software. Windows 95 comes with built-in network support, so if your computers are running it, you already have all the software you need. Computers running Windows 3.1 must be upgraded to Windows 95 or Windows for Workgroups. Windows 95 and Windows for Workgroups are compatible with each other, so you can build your network with some computers running Win95 and others running Workgroups.

Microsoft's software has the advantage of built-in network features, so don't you have to install a

DOS —Tip

Stick-On Notes for DOS

The next time you're working in DOS and want to remember something, don't reach for scrap paper to jot it down. If all you need is a brief note, try my batch file, REMEMBER.BAT, instead. To use it, type this command:

```
REMEMBER text
```

where *text* is a short reminder. The text is added to the DOS prompt (limit your reminders to one line so that your prompt doesn't exceed DOS's 127-character limit), where it stays until you type `FORGET`. (REMEMBER.BAT creates another batch file called FORGET.BAT.) For example, if you want to remember that the batch file BENCH.BAT took 31 seconds to run, you might type:

```
REMEMBER BENCH.BAT ran in 31 sec.
```

Unless your prompt is unusually long, most of your reminders will easily fit within your prompt. If you exceed the limit, don't worry. Your prompt will look strange, but typing `FORGET` always restores your original prompt.

Before running REMEMBER.BAT, make sure that the directory in which you saved it is in your PATH statement. Next, set the environment variable D in the third line to the full name of this directory. For example, if you save REMEMBER.BAT in the directory C:\BATCH, change the third line to read:

```
SET D=C:\BATCH
```

—Richard Penn

REMEMBER.BAT lets you jot down short notes and add them to your DOS prompt.

```
@ECHO OFF
IF "%1"=="" GOTO HELP
SET D=C:\TEST
IF NOT "%REMEMBER%"=="" CALL FORGET
ECHO @ECHO OFF>%D%\FORGET.BAT
ECHO IF NOT "%%REMEMBER%%"=="" PROMPT=%PROMPT%>%D%\FORGET.BAT
ECHO SET REMEMBER=>%D%\FORGET.BAT
ECHO ECHO.>%D%\FORGET.BAT
SHIFT
PROMPT %0 %1 %2 %3 %4 %5 %6 %7 %8 %9$_%PROMPT%
SET REMEMBER=X
SET D=
GOTO END
:HELP
ECHO REMEMBER [TEXT]
ECHO.
ECHO Appends a brief note to the DOS prompt;
ECHO Type FORGET to remove it.
:END
ECHO.
```

End

separate program and learn how to use it. The drawback is that you have to run Windows on all of your computers; if you have an older computer that can't run Windows, that system won't be able to access the network.

LANtastic, on the other hand, works equally well with DOS and Windows. If you have one or more computers that can't run Windows, use Artisoft's product. It'll cost you about $80 per computer for the Windows 3.1 or DOS version; the cost for the Windows 95 version is about $100 per computer.

What Are the Road Hazards?

Setting up a network should go smoothly, but a few problems can pop up. Here are the most common gotchas:

- **IRQ conflicts.** Whenever you install a new card, you run the risk that its IRQ (interrupt request) setting will conflict with that of another card already in the computer. Better network cards include configuration software that detects IRQ settings in use so that you can steer clear.
- **Cable problems.** Coax cable is pretty reliable, but to avoid electrical interference, don't drape it over fluorescent-light fixtures or lay it next to electrical cords. And make sure each end of the network has a properly installed terminator. Be aware, too, that sometimes cable connections go bad.
- **Turning off a computer while someone is still using the network.** That's a bad idea, especially if your system includes a shared disk drive or printer. It's best to turn all computers on at the start of the day, leave them on throughout the day, and then turn them all off.

What Will This Cost?

Nothing worthwhile is free, but networking your computers won't force you to take out a second mortgage. You should be able to network your PCs for about $125 per machine. If they're already running Windows for Workgroups or Windows 95, the cost drops to about $50 per computer, because you won't have to buy separate network software. To get an idea of what a network's various components cost, see "A Sample Shopping List" (below).

How Should I Organize My Network?

Before you set up your network, decide how you want to organize it: what you'll use each computer for, which resources (such as printers and disk drives) you want to share, and which computers will have access to which resources.

Although you can set up your network with all systems sharing all resources—so that any user on the network can access any other user's disk files—such an arrangement probably isn't a good idea. For starters, you should avoid sharing entire disk drives. Instead, share individual directories (or folders, as Windows 95 calls them). For example, if your customer database is in a directory named C:\CUSTDB, share the C:\CUSTDB folder rather than the entire C: drive.

By sharing individual folders instead of whole disk drives, you create a simple type of security system: Network users can access files in shared directories, but not other files. You may think that you don't need any type of security at all. But keep in mind that security is important not just to keep malicious users from prying into your private files, but also to protect your files from careless users who might delete them accidentally.

You may want to create a shared directory on one computer's hard disk, then let all computers on the network access that one directory. You can use it as a common file-storage area. For example, if you want to send a file to a coworker, just copy it to the shared folder; your coworker can copy the file from the shared folder to his or her own hard disk.

On larger networks, it's a good idea to dedicate one computer to act as a network server, which sits off by itself in a corner, where it's used solely to provide shared disk space and printers. That way, you can set up the server to handle its network duties as efficiently as possible. For a network of just a few computers, you don't need a separate server.

Will It Work?

Sure it will! All you need is a little confidence, some time, and the right materials. The main trick is to carefully follow the instructions that come with the network cards and software. If you do, your network should be up and running in no time. ■

A SAMPLE SHOPPING LIST

To give you an idea of the costs involved in networking several computers, here's a typical list of the materials required to network four computers using Artisoft's LANtastic software. Prices were taken from a mail-order supplier in April 1996. The cost works out to just over $120 per computer.

4 Ethernet cards @ $29.95 each	$119.80
3 25-foot Thinnet coax cables @ $14.95 each	$ 44.85
LANtastic 6.0: 4 users @ $79.95 each	$319.80
TOTAL	**$484.45**

—D.L.

SHAREWARE TEXT EDITORS

Get Me Rewrite!

If you don't need a humongous word processor that does everything short of grocery shopping, try these modest but feature-packed shareware text editors on for size.

by Joshua C. Nossiter

Writers of batch files and epic novels have at least one thing in common: a favorite writing tool. Though many cling to the fountain pen or the portable typewriter (fiction editors at big publishing companies favor the No. 2 pencil), most of us have a word processor or three that we call our own. But a terrible epidemic is raging among word processors, and it's getting worse all the time: Elephantiasis of the software code is devastating hard drives everywhere.

Those with hundreds of free megabytes of disk space might think they're immune. Think again. The latest word processor to land on my desktop weighs in at nearly 140MB. With every last feature loaded, from Internet publisher to spreadsheet, this overweight infant chews up a quarter of a gigabyte of hard-disk real estate. It's packed with wonderful toys, but few of us adorn memos and batch files with drop caps and watermarks.

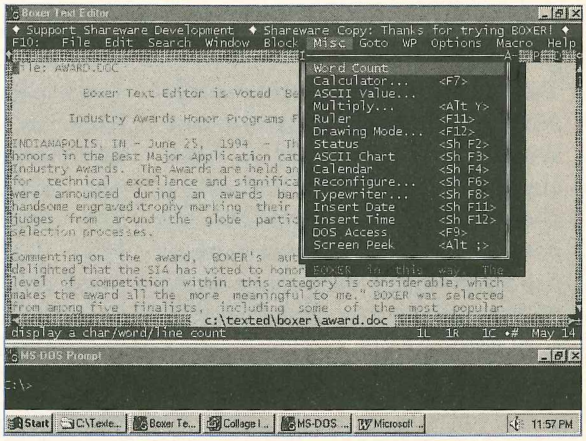
What to do? Windows 3.x and 95 users have Write and WordPad. Both are leaner than their full-featured cousins, but Write is very *sloooow*, and WordPad doesn't do binary files. There are also editions of Notepad in both Windows versions. Few sing Notepad's praises. The charitable see this accessory as a big improvement on its predecessor, DOS's venerable EDLIN. EDLIN itself has curiosity value, but only as a museum piece.

With alternatives like these, some users might be tempted to dust off the old typewriter. Before you take that radical step, though, check out the following text editors plucked from the shareware world. They're small, they're fast, and most offer a feature or two that sets them apart. They won't tempt you to trade in your commercial word-processor colossus, but some of these shareware titles make excellent replacements for the textually challenged accessories that come with DOS and Windows.

Programmer's Choice

Don't judge **Boxer**, a DOS shareware text editor that also runs under Windows, by its cover. Its color scheme (customizable, with effort) isn't exactly what you'd choose for your bedroom, and its cluttered menu system includes options such as Kill Line and Clone Line. But if you love features, Boxer has them. Along with word-processing basics such as search-and-replace and word wrap, you'll find a built-in calendar, a calculator, and an option to run your printer in typewriter mode: Enter a line on screen, press Enter, and the printer spits it out as you type.

Boxer is so feature-packed that one of the items on the menu bar is



```
File: AWARD.DOC

        Boxer Text Editor is Voted `Be

      Industry Awards Honor Programs F

INDIANAPOLIS, IN - June 25, 1994 - Th
honors in the Best Major Application cat
Industry Awards. The Awards are held an
for technical excellence and significa
were announced during an awards ban
handsome engraved trophy marking their
judges from around the globe partic
selection processes.

Commenting on the award, BOXER's aut
delighted that the SIA has voted to honor BOXER in this way. The
level of competition within this category is considerable, which
makes the award all the more meaningful to me." BOXER was selected
from among five finalists, including some of the most popular
```

Photo 1. Boxer is so crammed with features that some of them spill over into the Miscellaneous category. Boxer fits handily in a window if you like to keep an eye on your DOS prompt.

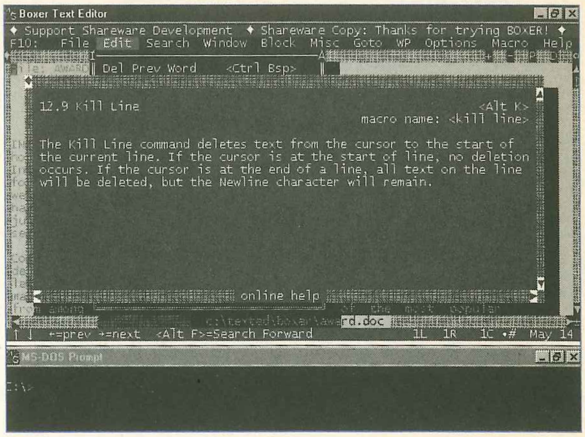
simply called Misc, to accommodate gadgets that don't fit into the other categories. This is one text editor designed with software developers in mind. How many editors provide a Compile command on the File menu? For batch-file writers who like an editor in one window and the DOS prompt in another, Boxer does nicely. (See **Photo 1**, opposite.)

The program includes all sorts of programming aids, including a feature called *syntax highlighting*: Boxer displays the source code for popular programming languages with items such as comments and constants automatically highlighted to help avoid syntax errors. You'll also find a complete macro facility, extensive line-sorting options, and other gadgets to straighten out unruly programming projects—including the potential to undo your last 4096 editing changes!

You can execute commands from the menus (with mouse or keyboard) or via keyboard shortcuts. You can also set the keyboard to emulate popular word processors, including Word and WordPerfect. But with all the myriad features packed into this program, Boxer's menus aren't the easiest to navigate. There's so much here that finding what you need can be a bit of a chore, although excellent context-sensitive help is available. Highlight a menu option, press F1, and a complete explanation for the option pops up in a window. (See **Photo 2**, above.)

Searching for a topic is neither easy nor obvious, however. To locate the help you need, you choose the third item on the Help menu, press Alt+F, and then type the text for which you're looking. It works, but a handy Search for Help command would have made the program a little more user-friendly. Maybe there was just no more room for yet another item on Boxer's jam-packed menus.

With all its features, this Boxer has little fat. It occupies less than a megabyte of hard-disk space, though it'll handle files of any size and any number of files at the same time. You're limited only by system memory.


Boxer Text Editor
♦ Support Shareware Development ♦ Shareware Copy: Thanks for trying BOXER! ♦
F10: File Edit Search Window Block Misc Goto WP Options Macro Help
Del Prev Word <Ctrl Bsp>
online help
c:\texted\boxer\award.doc
↑ ↓ ←=prev →=next <Alt F>=Search Forward 1L 1R 1C •# May 14
MS-DOS Prompt

```
12.9 Kill Line                                              <Alt K>
                                               macro name: <kill line>

The Kill Line command deletes text from the cursor to the start of
the current line. If the cursor is at the start of line, no deletion
occurs. If the cursor is at the end of a line, all text on the line
will be deleted, but the Newline character will remain.
```

Photo 2. Context-sensitive help makes sense of Boxer's myriad features: Highlight a menu item, press F1, and an instant explanation pops up.

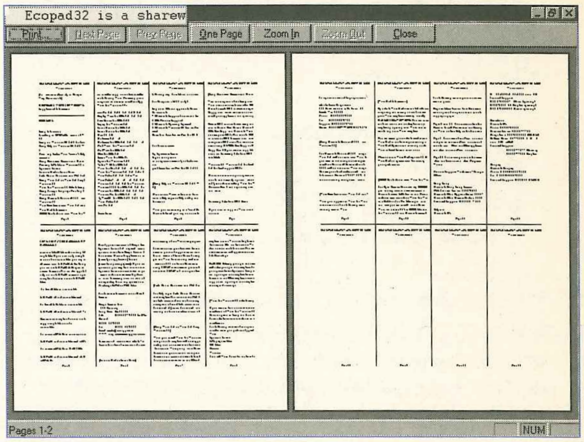


Photo 3. Compressed printing to the max. Ecopad32 lets you jam up to 16 pages on a single sheet.

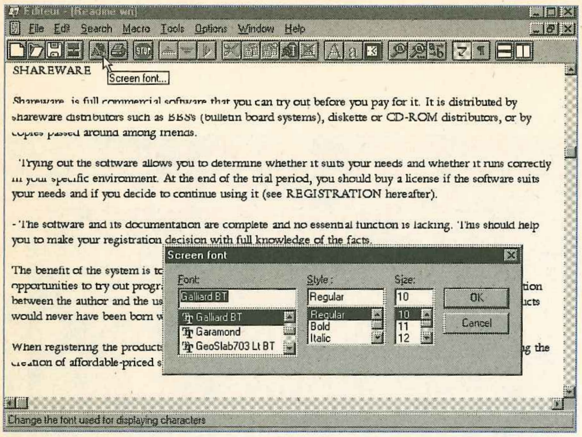
A Notepad Replacement for Tree Lovers

Remember how computers were going to give us the paperless office? Right. Instead, we're afloat in an ocean of faxes, photocopies, and printouts.

Ecopad32, a shareware text editor for Windows 95, wants to do something about the overpapered office. This modest Notepad substitute lets you compress eight standard pages to print on a single sheet. And for those determined to save a few trees, Ecopad32 lets you print on both sides of the page. Not at the same time: Two-sided printing requires two steps. You print all your odd numbered pages, load them back into the printer, and then print the even-numbered pages. The result is up to 16 pages of text printed on a single sheet of paper. (See **Photo 3**, above.) You can even see how it'll look with a click of the handy Print Preview button. Compressed printing really works. The program recommends a particular font size for maximum legibility, and my experimental print job resulted in tiny, but readable, type.

There's a lot to like about Ecopad32. First, it occupies a mere 630K or so of hard-disk space. The modest editing window has a well-designed toolbar for accessing the program's features; buttons to insert the date and time are convenient; and there's an excellent ANSI-to-DOS-text (and back again) converter. Ecopad32 also extracts text from RTF (Rich Text Format) documents, letting users who can't otherwise read that format see text without all the codes.

There's a well-thought-out WYSIWYG menu of print fonts to choose from, but the lack of a Close File



SHAREWARE

Shareware is full commercial software that you can try out before you pay for it. It is distributed by shareware distributors such as BBS's (bulletin board systems), diskette or CD-ROM distributors, or by copies passed around among friends.

Trying out the software allows you to determine whether it suits your needs and whether it runs correctly in your specific environment. At the end of the trial period, you should buy a license if the software suits your needs and if you decide to continue using it (see REGISTRATION hereafter).

- The software and its documentation are complete and no essential function is lacking. This should help you to make your registration decision with full knowledge of the facts.

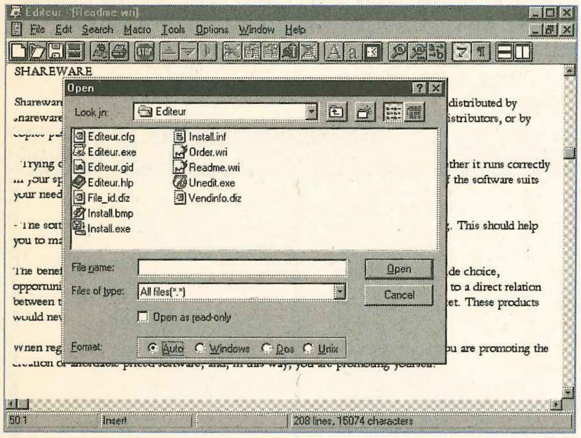
The benefit of the system is to … opportunities to try out progr… tion between the author and the us… icts would never have been born w…

When registering the product… g the creation of affordable-priced s…

Font: Galliard BT — Galliard BT, Garamond, GeoSlab703 Lt BT
Style: Regular — Regular, Bold, Italic
Size: 10 — 10, 11, 12

Change the font used for displaying characters

Photo 4. Don't like what you see? Editeur displays your text in any installed Windows font for a quick cosmetic fix. Note the array of quirky but appealing icons on the toolbar; point at one of them and you get a label and a brief description.



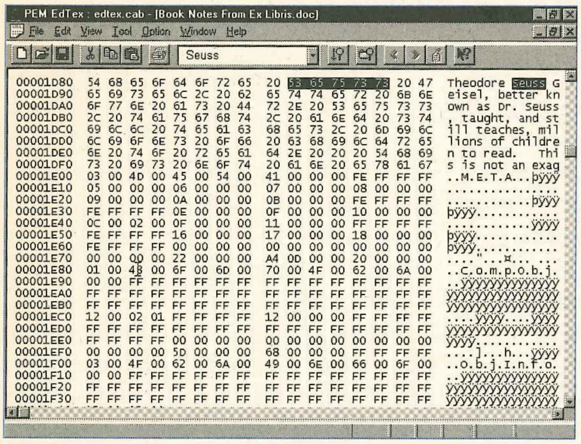
Look in: Editeur

Editeur.cfg
Editeur.exe
Editeur.gid
Editeur.hlp
File_id.diz
Install.bmp
Install.exe
Install.inf
Order.wri
Readme.wri
Unedit.exe
Vendinfo.diz

File name:
Files of type: All files(*.*)
☐ Open as read-only
Format: ● Auto ○ Windows ○ Dos ○ Unix

50:1 | Insert | | 208 lines, 15074 characters

Photo 5. Open your file in Editeur and the program will take a good stab at guessing its format. And if you're unfortunate enough to have to deal with Unix files, Editeur can even handle that chore.


PEM EdTex : edtex.cab - [Book Notes From Ex Libris.doc]
File Edit View Tool Option Window Help
Seuss

```
00001D80  54 68 65 6F 64 6F 72 65  20 53 65 75 73 73 20 47  Theodore Seuss G
00001D90  65 69 73 65 6C 2C 20 62  65 74 74 65 72 20 6B 6E  eisel, better kn
00001DA0  6F 77 6E 20 61 73 20 44  72 2E 20 53 65 75 73 73  own as Dr. Seuss
00001DB0  2C 20 74 61 75 67 68 74  2C 20 61 6E 64 20 73 74  , taught, and st
00001DC0  69 6C 6C 20 74 65 61 63  68 65 73 2C 20 6D 69 6C  ill teaches, mil
00001DD0  6C 69 6F 6E 73 20 6F 66  20 63 68 69 6C 64 72 65  lions of childre
00001DE0  6E 20 74 6F 20 72 65 61  64 2E 20 20 20 54 68 69  n to read.   Thi
00001DF0  73 20 69 73 20 6E 6F 74  20 61 6E 20 65 78 61 67  s is not an exag
00001E00  03 00 4D 00 45 00 54 00  41 00 00 00 FE FF FF FF  ..M.E.T.A...þÿÿÿ
00001E10  05 00 00 00 06 00 00 00  07 00 00 00 08 00 00 00  ................
00001E20  09 00 00 00 0A 00 00 00  0B 00 00 00 FE FF FF FF  ............þÿÿÿ
00001E30  FE FF FF FF 0E 00 00 00  0F 00 00 00 10 00 00 00  þÿÿÿ............
00001E40  0C 00 02 00 0F 00 00 00  11 00 00 00 FF FF FF FF  ............ÿÿÿÿ
00001E50  FE FF FF FF 16 00 00 00  17 00 00 00 18 00 00 00  þÿÿÿ............
00001E60  FE FF FF FF 00 00 00 00  00 00 00 00 00 00 00 00  þÿÿÿ............
00001E70  00 00 00 00 22 00 00 00  A4 0D 00 00 20 00 00 00  ....."...¤... ...
00001E80  01 00 43 00 6F 00 6D 00  70 00 4F 00 62 00 6A 00  ..C.o.m.p.O.b.j.
00001E90  00 00 FF FF FF FF FF FF  FF FF FF FF FF FF FF FF  ..ÿÿÿÿÿÿÿÿÿÿÿÿÿÿ
00001EA0  FF FF FF FF FF FF FF FF  FF FF FF FF FF FF FF FF  ÿÿÿÿÿÿÿÿÿÿÿÿÿÿÿÿ
00001EB0  FF FF FF FF FF FF FF FF  FF FF FF FF FF FF FF FF  ÿÿÿÿÿÿÿÿÿÿÿÿÿÿÿÿ
00001EC0  12 00 02 01 FF FF FF FF  12 00 00 00 FF FF FF FF  ....ÿÿÿÿ....ÿÿÿÿ
00001ED0  FF FF FF FF FF FF FF FF  FF FF FF FF FF FF FF FF  ÿÿÿÿÿÿÿÿÿÿÿÿÿÿÿÿ
00001EE0  FF FF FF FF 00 00 00 00  00 00 00 00 00 00 00 00  ÿÿÿÿ............
00001EF0  00 00 00 00 5D 00 00 00  68 00 00 00 FF FF FF FF  ....]...h...ÿÿÿÿ
00001F00  03 00 4F 00 62 00 6A 00  49 00 6E 00 66 00 6F 00  ..O.b.j.I.n.f.o.
00001F10  00 00 FF FF FF FF FF FF  FF FF FF FF FF FF FF FF  ..ÿÿÿÿÿÿÿÿÿÿÿÿÿÿ
00001F20  FF FF FF FF FF FF FF FF  FF FF FF FF FF FF FF FF  ÿÿÿÿÿÿÿÿÿÿÿÿÿÿÿÿ
00001F30  FF FF FF FF FF FF FF FF  FF FF FF FF FF FF FF FF  ÿÿÿÿÿÿÿÿÿÿÿÿÿÿÿÿ
```

Photo 6. PEM EdTex can open and edit binary files easily, but it's less successful at searching through files for missing text strings, unless you load the file in question first. Don't rely on the on-line documentation for assistance; its style is something less than straightforward.

command is a peculiar omission. About the only other thing not to like about Ecopad32 is the program's maddening insistence that you register your software. Until you do, a scrolling message box that you can neither close nor minimize appears at the top of your screen. Would-be Ecopad32 users will find themselves either zapping the evaluation copy off their hard drives or reaching for the phone or modem to pay for the software. That's no more than they should do, of course. Shareware isn't freeware, as Ecopad reminds you. And reminds you. And reminds you . . . .

A Slick Import with Plenty Under the Hood

Every try to draw your own toolbar button? My attempts give me a renewed appreciation of the pros' artistry. **Editeur**, a Windows 95 text editor, offers a toolbar full of quirky but appealing icons. Labels and brief descriptions, which you get when you point at the icons, make them more appealing still.

Editeur seems designed for eye appeal and ease of use, and it succeeds in both departments. A status bar gives you a running total of your file's character and line count, and a toolbar button lets you change screen fonts instantly. (See **Photo 4**, above.)

Beyond its screen-deep qualities, Editeur offers plenty of handy editing features. You'll find prominent toolbar buttons to undo and redo edits, and an impressive search capability lets you hunt for text strings across several open documents. Editeur also includes a trick that some of those $400 word processors just can't do: Click on the toolbar's Append button and you can add selected text to the Windows Clipboard without wiping out any items you copied or cut earlier.

Editeur manages files as large as your system memory permits. And no matter how big the file, the program completes demanding chores such as search-and-replace with lightning speed. For those stuck with editing Unix files, Editeur can handle them with aplomb. The program's Open dialog box lets you select a file format; just choose the Auto option and Editeur will determine the file's format for you. (See **Photo 5**, left.)

In Search of the Lost String

You *know* you typed a particular string of characters; you just can't remember where. If you're prone to little lapses like that, you might want to look at **PEM EdTex**, a 32-bit text editor for Windows 95, Windows NT, and Windows 3.1 with Win32s.

EdTex's Find in Files option hunts through your choice of folders and subfolders for the string you seek. It then loads the file or files in question into the editing window automatically. That's the idea, anyway. I turned Find in Files loose on a text string I'd typed in a binary file, and EdTex couldn't find it. When I loaded the file and clicked on the EdTex toolbar's Find Next button, the program zeroed in on the string with no problem. (See **Photo 6**, left.)

Of course, I might have missed something in the on-line documentation. The Help system tries to be helpful, but the descriptions and instructions are written in a style that defies both understanding and even the most elementary rules of English usage. Consider the following quotation:

```
How to use tag window
Tag window created by Find in
Files has the following
informations.
Full path name and line number
where found text exists, and found
text.
You can easily open the file and
display the found text by using
the above informations.
```

Though I was genuinely interested in the uses of the mysterious Tag window, my curiosity was doused by that baffling explanation. On the plus side, PEM EdTex lets you open and edit binary files easily.

Compact Translator In the Tower of Babel

Although it occupies a diminutive 357K of disk space, **Mega Edit**, a Windows text editor, can open multiple files of any size. What's more, you can split the Mega Edit screen into windows to view and edit multiple files simultaneously. That's handy for batch-file writers who like to take notes as they work, and it's a trick Notepad users can only dream about. (See **Photo 7**, above.)

The spare Mega Edit window is short on buttons, but for a text editor there's no lack of features. The program can handle Unix and Macintosh files, and resizable screen fonts help you see what you're working on.

Along with basic editing functions, including search-and-replace, Mega Edit lets you do a little interior decorating. You get a few color schemes to choose from, including Metallic and Maze and Blue. Maze and Blue? Anything to dress up that plain text, and it doesn't look half bad besides.

Smooth Customer

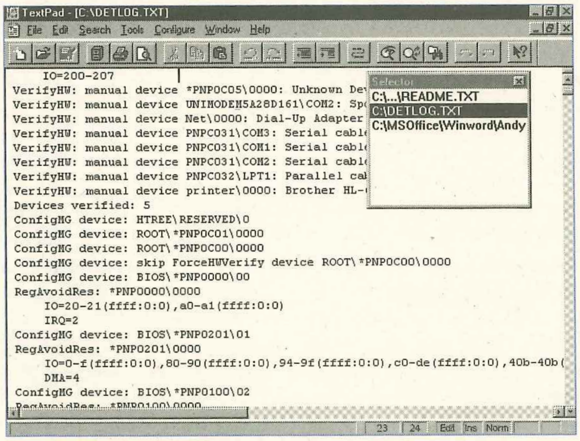
If scrolling in an ordinary text editor sometimes feels like walking uphill, scrolling in **Smooth Editor** is more like riding an escalator.

Pages just roll on by as though on ball bearings, thanks to something called FAST Smooth Scrolling. The effect will be familiar to those of you who use Windows 95 programs such as Microsoft Excel 7, but it's rather startling to see it in a DOS text editor.

The program includes a Windows-compatible version that lets you cut and paste text from and to Windows programs. Both versions are fast and compact.

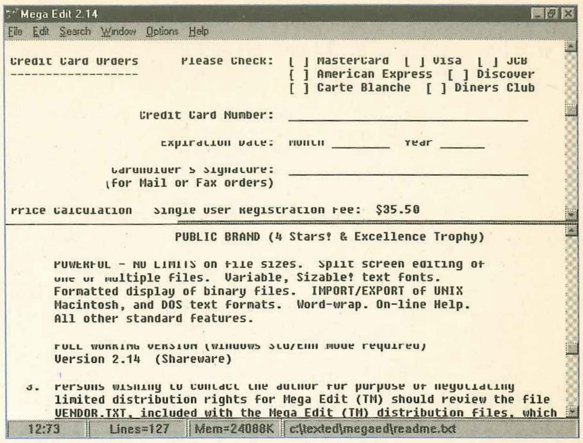
The DOS and Windows versions also look identical, which is unfortunate. Smooth Editor displays a truly hideous color scheme, and although you can change it, you'll have to edit the program's INI file to do so.

Smooth Editor comes complete with a macro facility and a multilevel undo function. If you like DOS, you'll love the interface; there's a menu bar, but you have to press Esc to see it. Up to ten bookmarks let you mark your places in a long document.



```
    IO=200-207
VerifyHW: manual device *PNP0C05\0000: Unknown De
VerifyHW: manual device UNIMODEM5A28D161\COM2: Sp
VerifyHW: manual device Net\0000: Dial-Up Adapter
VerifyHW: manual device PNPC031\COM3: Serial cabl
VerifyHW: manual device PNPC031\COM1: Serial cabl
VerifyHW: manual device PNPC031\COM2: Serial cabl
VerifyHW: manual device PNPC032\LPT1: Parallel ca
VerifyHW: manual device printer\0000: Brother HL-
Devices verified: 5
ConfigMG device: HTREE\RESERVED\0
ConfigMG device: ROOT\*PNP0C01\0000
ConfigMG device: ROOT\*PNP0C00\0000
ConfigMG device: skip ForceHWVerify device ROOT\*PNP0C00\0000
ConfigMG device: BIOS\*PNP0000\00
RegAvoidRes: *PNP0000\0000
    IO=20-21(ffff:0:0),a0-a1(ffff:0:0)
    IRQ=2
ConfigMG device: BIOS\*PNP0201\01
RegAvoidRes: *PNP0201\0000
    IO=0-f(ffff:0:0),80-90(ffff:0:0),94-9f(ffff:0:0),c0-de(ffff:0:0),40b-40b(
    DMA=4
ConfigMG device: BIOS\*PNP0100\02
RegAvoidRes: *PNP0100\0000
```

Photo 8. TextPad's Selector is a thoughtful feature that commercial word processors would do well to imitate.



```
Credit Card Orders        Please Check:  [ ] MasterCard  [ ] Visa  [ ] JCB
------------------                       [ ] American Express  [ ] Discover
                                         [ ] Carte Blanche  [ ] Diners Club

                       Credit Card Number:  _________________________________

                         Expiration Date:  Month ________  Year ______

                    Cardholder's Signature:  _________________________________
                   (for Mail or Fax orders)

Price Calculation   Single User Registration Fee:  $35.50

                          PUBLIC BRAND (4 Stars! & Excellence Trophy)

      POWERFUL - NO LIMITS on file sizes.  Split screen editing of
      one or multiple files.  Variable, Sizable! text fonts.
      Formatted display of binary files.  IMPORT/EXPORT of UNIX
      Macintosh, and DOS text formats.  Word-wrap. On-line Help.
      All other standard features.

      FULL WORKING VERSION (Windows Std/Enh mode required)
      Version 2.14  (Shareware)

  3.  Persons wishing to contact the author for purpose of negotiating
      limited distribution rights for Mega Edit (TM) should review the file
      VENDOR.TXT, included with the Mega Edit (TM) distribution files, which
 12:73 | Lines=127 | Mem=24088K | c:\texted\megaed\readme.txt
```

Photo 7. Mega Edit's split-screen view lets you work in two files at the same time; the status bar monitors memory usage.

Launch Pad for Big Editing Jobs

TextPad, a Windows 95 text editor that also runs under Win32s, isn't shy about sharing its rave reviews. Install the shareware version, and the first thing you see is a README file with blurbs from various publications.

The praise is deserved. TextPad is a fast, powerful, slick-looking editor, with a range of features that wouldn't be out of place in a full-blown word processor.

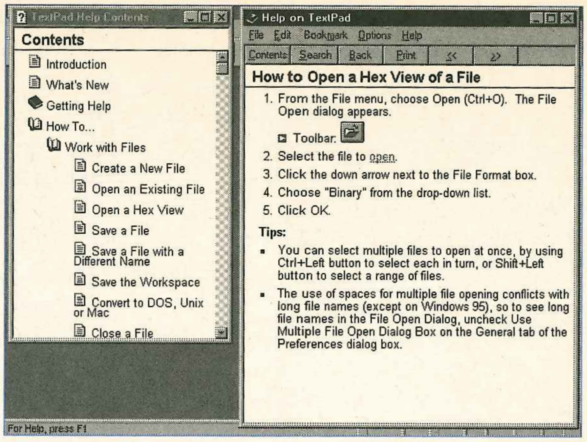
You'll find undo and redo functions; a search-and-replace feature; a clipboard-append facility, which lets you add more cut or copied text to an existing selection; adjustable screen fonts; and a split-window view. It seems as though all the best features of the other shareware editors reviewed here seem to have found a home in TextPad.

TextPad offers a few interesting wrinkles of its own, too. A Compare Files command shows comparative statistics on two different files. And TextPad includes the one formatting feature you really want in a text editor: the ability to change the case for a block of text. The program also lets you open large files and multiple files.

TextPad is particularly handy when it comes to juggling several open files. Click on the Window menu's Use Selector option and a list of all open files pops up. Just select the file you want to go right to it; the Selector feature stays on screen in case you want to switch files again. (See **Photo 8**, page 29.)

Unlike some of its competitors, TextPad doesn't automatically recognize binary files. You can open and edit them easily enough, but you have to select the Binary File format in TextPad's Open File dialog box to do it.

That cavil aside, TextPad—in a bare 1MB of disk space—makes a first-rate replacement for Windows' weak editing accessories. To ice the cake, the program's on-line help system is searchable, thorough, and clearly written (see **Photo 9**, right), which puts it in a class by itself in this roundup of shareware text processors. ■



How to Open a Hex View of a File

1. From the File menu, choose Open (Ctrl+O). The File Open dialog appears.
2. Select the file to open.
3. Click the down arrow next to the File Format box.
4. Choose "Binary" from the drop-down list.
5. Click OK.

Tips:

- You can select multiple files to open at once, by using Ctrl+Left button to select each in turn, or Shift+Left button to select a range of files.
- The use of spaces for multiple file opening conflicts with long file names (except on Windows 95), so to see long file names in the File Open Dialog, uncheck Use Multiple File Open Dialog Box on the General tab of the Preferences dialog box.

Photo 9. TextPad is a standout text editor for several reasons, not the least of which is its lucid and complete on-line help.

PRODUCT INFORMATION

All of these programs are available on CompuServe and on the *DOS World* BBS (dialing instructions on page 64). You can also download them from various Internet sites; if the vendor doesn't have a Web site, you can find it with your favorite search engine. Another source of shareware on the Web is **http:\\www.shareware.com**.

Boxer 7.0a, $50
Boxer Software
P.O. Box 3230
Peterborough, NH 03458-3230
800-982-6937
CompuServe: **70242,2126**
Web site: **http://www.boxersoftware.com/users/dhamel/**
DW BBS: **BOXER70A.ZIP**, File Area 5
MS-DOS

Ecopad32, $25
David T. Ossorio
Azure D'or Software
325 South Washington Ave. #166
Kent, WA 98032
800-2424-PSL
AOL: **davossorio**
CompuServe: 71533,1573
Internet: **davossorio@msn.com**
DW BBS: **ECPD32.ZIP**, File Area 8
Windows 95, Windows NT, Windows 3.1 with Win32s

Editeur 2.3, $23
Jean-Pierre Menicucci
18 rue de Brest
Appartement 243
35000 Rennes
France
+33 9959-1228
CompuServe: **73261,2701**
DW BBS: **ED23U9.ZIP**, File Area 8
Windows 95, Windows NT, Windows 3.1 with Win32s

PEM EdTex, $20
Toshiyuki Miyazaki
CompuServe: **100466,652**
DW BBS: **EDTEX32.ZIP**, File Area 8
Windows 95, Windows NT, Windows 3.1 with Win32s

Mega Edit 2.10, $35.50
WinNET Communications Inc.
P.O. Box 4189
Louisville, KY 40204
502-589-5999
CompuServe: **76130,1463**
Internet: **megaedit@win.net**
DW BBS: **MEGAED.ZIP**, File Area 8
Windows 3.x, Windows 95

Smooth Editor 2.1, $20
Dubbeldam Software
Julianalaan 36
2628 BH Delft
Netherlands
CompuServe: **100554,1102**
Web site: **http://ourworld.compuserve.com/homepages/dubbeldam/se.htm**
DW BBS: **SMED21.ZIP**, File Area 5
MS-DOS, Windows 3.x, Windows 95

TextPad 1.31, $35
Helios Software Solutions
Carr Brook House
Chorley Old Road
Brindle, Chorley
Lancashire PR6 7QZ
United Kingdom
+44-(0)1772-324353
CompuServe: **100041,235**
Internet: **textpad@heliosof.demon.co.uk**
Web site: **http://www.textpad.com**
Microsoft Network: **HelioSoft**
DW BBS: **TXP32131.ZIP**, File Area 8
Windows 95, Windows 3.1 with Win32s

BATCH-FILE TRICKS

You Batcha By Golly Wow!

This collection of DOS World's *best batch-file tricks and techniques will put you on your way to becoming an expert programmer.*

compiled by the *DOS World* staff

Over the years, *DOS World*'s readers and contributors have unearthed a variety of techniques that make batch-file programs easier to write and use. We thought it was time to collect the top 12 for those of you who missed them the first time around. After you read this article, you'll have learned, among other things, how to:

- use FIND to expand the uses of DIR
- modify your PATH statement on the fly
- speed up your batch files with alternatives to REM statements
- convert user input automatically from lowercase to uppercase
- parse strings with FOR...IN...DO

This article isn't an introduction to batch-file writing; we'll assume you have a basic understanding of batch-file programming. But most of these tips are easy to understand and can be integrated readily into your own programs.

Who knows? Our techniques may even inspire you to invent your own unique batch-file tricks.

Displaying Selected DIR Information

The DIR command permits switches and wildcards that give you some control over listing particular types of files in a directory. But it has its limitations. For example, what if you want to list every file in a directory except those with a TXT extension?

The solution is to use DIR with the FIND command. Here's the line that will give you the desired results:

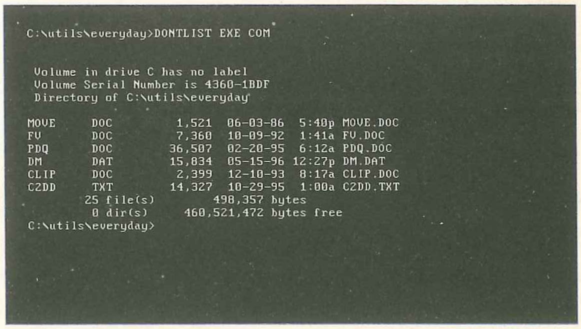
```
DIR /A-D | FIND /V " TXT "
```

The /A-D switch forces DIR to exclude directories. The pipe (|) routes the list to the FIND command. The /V switch tells FIND to list all lines that don't contain the string within the quotation marks: TXT preceded by a space. (The space ensures that FIND doesn't exclude files that happen to contain the letters TXT as part of the base name—NEWTXT.DOC, for example.)

You can stack FIND commands to narrow your search. For example, this command lists all files except those with a TXT or DOC extension:

```
DIR /A-D | FIND /V " TXT " |
   FIND /V " DOC "
```

Listing 1, DONTLIST.BAT (page 32), provides an example of how



```
C:\utils\everyday>DONTLIST EXE COM

 Volume in drive C has no label
 Volume Serial Number is 4360-1BDF
 Directory of C:\utils\everyday

MOVE     DOC         1,521  06-03-86   5:40p MOVE.DOC
FV       DOC         7,360  10-09-92   1:41a FV.DOC
PDQ      DOC        36,507  02-20-95   6:12a PDQ.DOC
DM       DAT        15,834  05-15-96  12:27p DM.DAT
CLIP     DOC         2,399  12-10-93   8:17a CLIP.DOC
C2DD     TXT        14,327  10-29-95   1:00a C2DD.TXT
        25 file(s)        498,357 bytes
         0 dir(s)     460,521,472 bytes free
C:\utils\everyday>
```

Photo 1. The results of running DONTLIST.BAT with COM and EXE files excluded.

you can use this technique in a batch file that lists all files except those with specified extensions. DONTLIST.BAT lets you exclude up to two extensions, using the following syntax:

```
DONTLIST [extension1] [extension2]
```

where *extension1* and *extension2* are those you want to omit. **Photo 1** (page 31) shows the results of a DONTLIST.BAT search.

Note that FIND includes a second switch, /I, which instructs FIND to ignore the case of the extensions you type at the command line.

Listing 1. DONTLIST.BAT demonstrates how to use the FIND command to refine directory listings. DONTLIST.BAT displays a directory of all files except those with extensions the user specifies.

```
@ECHO OFF
IF "%1"=="" GOTO NOPARAM
SET EXTENSION1=%1
SET EXTENSION2=%2
IF "%2"=="" SET EXTENSION2=.
DIR /A-D | FIND /V /I " %EXTENSION1%" | FIND /V /I " %EXTENSION2%"
  | MORE
GOTO END
:NOPARAM
ECHO No file extensions specified. Syntax is:
ECHO.
ECHO DONTLIST [extension1] [extension2]
ECHO.
:END
SET EXTENSION1=
SET EXTENSION2=
```

End

Automating Enter

Many batch-file programmers occasionally need to route the date to a file. If the batch file includes the DATE command, though, it prompts the user to enter a new date.

Here's a way to send a carriage return automatically to the DATE command:

```
ECHO. | DATE
```

ECHO. by itself sends a carriage return to the screen. The pipe symbol (|) reroutes the carriage return to the command DATE.

To display the current date without prompting for a new one, use this command:

```
ECHO. | DATE | FIND "Current"
```

To route the line containing the date to a text file, use this line:

```
ECHO. | DATE | FIND "Current" >
  THISDATE.TXT
```

This technique works the same way with DOS's TIME and FORMAT commands.

Automating Other Responses

The ECHO command and the pipe symbol are useful when you combine them with other commands, as well. Here's a common trick to delete all files in a directory automatically without having to answer the "Are you sure (Y/N)?" query:

```
ECHO Y | DEL *.*>NUL
```

Setting and Resetting Your PATH on the Fly

If you have several DOS programs that require you to include their directories in your PATH statement, you've probably found out the hard way that your path can't exceed 127 characters. The solution is to add each program's directory to your PATH statement only when you use the program.

Let's say, for example, that your path looks like this:

```
PATH=C:\DOS;C:\UTILS;C:\BAT
```

When you run your word processor (which we'll call TextEdit), you'll want to change your PATH statement temporarily to look like this:

```
PATH=C:\DOS;C:\UTILS;C:\BAT;
  C:\TEXTEDIT
```

The trick is to launch TextEdit from a batch file that creates the temporary path, runs TextEdit, and resets the path when you're done. Here's what the batch file might look like:

```
@ECHO OFF
SET OLDPATH=%PATH%
PATH %PATH%;C:\TEXTEDIT
CD C:\TEXTEDIT
TEXTEDIT
SET PATH=%OLDPATH%
SET OLDPATH=
CD C:\
```

The second line tucks the current path away in an environment variable called OLDPATH. Then it sets a new path, combining the current one, a semicolon, and C:\TEXTEDIT. The fifth line runs the TextEdit program. When TextEdit closes, DOS returns control to the batch file, which resets PATH to the original pathname in OLDPATH.

REM Alternatives

The traditional way to insert remarks into a batch file is to precede them with REM statements. But a growing number of programmers are using one of two alternatives: replacing REM with a double colon (::), like this:

```
ECHO The following lines are
  remarks that will not be
  displayed.
::This line will not be displayed
::Neither will this line
ECHO the batch file proceeds
```

or jumping over remarks with a GOTO, like this:

Listing 2. LOOPER.BAT demonstrates how to use CALL to let a FOR...IN...DO statement perform more than one task on selected files. Here, FOR...IN...DO extracts each file, displays it, and provides an option to delete.

```
@ECHO OFF
IF "%1"==":TASKS:" GOTO TASKS
FOR %%A IN (%1) DO CALL %0 :TASKS: %%A
GOTO END
:TASKS
CLS
MORE %2
DEL /P %2
:END
```

End

```
ECHO The lines after the GOTO are
  remarks that will not be displayed.
GOTO JUMP
This line will not be displayed
Neither will this line
:JUMP
ECHO the batch file proceeds
```

The main reason for using these methods is that GOTOs and double colons make batch files run faster. DOS must execute a REM, but it doesn't execute lines after a GOTO or lines preceded by a double colon.

For two or three remarks, the speed differences are insignificant; you can measure them only in hundredths of a second on a Pentium 133. But as the number of remarks increases, so does the gap. For example, on one of our machines, DOS executed 1200 REMs in nearly eight seconds; it took only eight hundredths of a second to process the same remarks using GOTOs or double colons. That's a 98-percent savings.

Line length is also a factor. In our test, REMs followed by long remarks executed in about the same time as REMs followed by short remarks. But with GOTOs and double colons, the longer lines doubled execution time.

Converting User Input To Uppercase

As most batch-file programmers find out the hard way, IF statements are case sensitive. Consider the following example:

```
IF "%1"=="ERASE" GOTO ERASE
```

If the user types erase or Erase or any other combination of upper- and lowercase characters, DOS sees the IF statement as false and doesn't execute the GOTO. The solution is to use the PATH command to convert the user's input to uppercase. Here's the routine:

```
SET OLDPATH=%PATH%
SET PATH=%1
SET USERINPUT=%PATH%
SET PATH=%OLDPATH%
IF %USERINPUT%==ERASE GOTO ERASE
SET OLDPATH=
```

The first line stores the current path in an environment variable called OLDPATH. The second line sets the PATH variable to the user's input (the %1 variable), in the process converting the contents of %1 to uppercase. The third line then sets an environment variable to PATH —in other words, to the user's input. The fourth line resets PATH to its original state. The fifth line uses the converted string in the IF statement. Finally, the last line clears out the OLDPATH variable.

Debugging Batch Files

The time-honored way to debug a batch file is to turn ECHO off and use PAUSE statements to stop the program and let you see what's happening. But DOS 6.2 users have an additional tool. The following command executes a batch file line by line:

```
COMMAND /Y /C [BatchFileName]
```

Photo 2 (below) shows an example of the screen display.

FOR...IN...DO Loops

The FOR...IN...DO command is limited by its inability to process more than one command at a time. For example, you can't display each file in a directory with MORE and then give yourself the option of deleting those files with DIR /P.

You can trick FOR...IN...DO, though, by using recursion and a subroutine that runs the commands. **Listing 2** (above) shows a sample batch file called LOOPER.BAT. To use this program to display all TXT files and then a delete option, for example, you'd type:

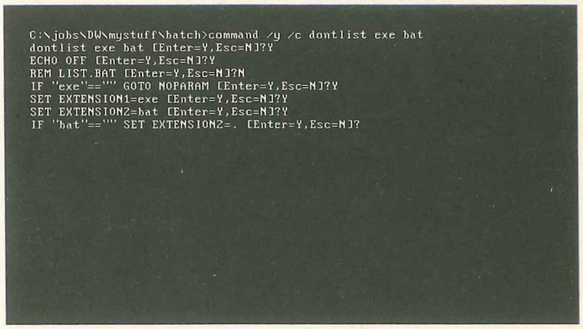
```
LOOPER *.TXT
```

The first time you run LOOPER.BAT, the IF statement in the second line checks to see whether %1 contains :TASKS:. Because it doesn't, the program then runs the FOR command. In our example, it extracts the first file with a TXT extension and then runs the CALL command. For example, if the first file is ABC.TXT, DOS executes this command:

```
CALL LOOPER :TASKS: ABC.TXT
```

That is, LOOPER.BAT runs a second copy of itself with two parameters—:TASKS: and ABC.TXT.

When LOOPER.BAT runs a second time, it once again checks %1 for



```
C:\jobs\DW\mystuff\batch>command /y /c dontlist exe bat
dontlist exe bat [Enter=Y,Esc=N]?Y
ECHO OFF [Enter=Y,Esc=N]?Y
REM LIST.BAT [Enter=Y,Esc=N]?N
IF "exe"=="" GOTO NOPARAM [Enter=Y,Esc=N]?Y
SET EXTENSION1=exe [Enter=Y,Esc=N]?Y
SET EXTENSION2=bat [Enter=Y,Esc=N]?Y
IF "bat"=="" SET EXTENSION2=. [Enter=Y,Esc=N]?
```

Photo 2. You can use COMMAND to step through a batch file line by line.

Listing 3. EXTRACT.BAT uses a slash in FOR...IN...DO's set to separate a filename's base and extension. For example, if you type `EXTRACT HELP.TXT`, the batch file will display the original filename and the base. To create the omegas in the fourth and ninth lines from DOS's text editor, Edit (EDIT.COM), hold down the Alt key and type 234 on the numeric keypad (with Num Lock on).

```
@ECHO OFF
SET NAME=%1
IF "%NAME%"=="" GOTO DONE
SET TNAME=%NAME%Ω
SET BASE=
SET CHAR=
:LP
SET TEMP=%TNAME%
IF "TNAME%"=="Ω" GOTO DONE
FOR %%A IN (/%TNAME%) DO SET TNAME=%%A
FOR %%A IN (/%TEMP%) DO IF %%A%TNAME%==%TEMP% SET CHAR=%%A
IF "%CHAR%"=="." GOTO DONE
SET BASE=%BASE%%CHAR%
GOTO LP
:DONE
ECHO Original filename: %NAME%
ECHO Base of filename: %BASE%
SET CHAR=
SET TEMP=
SET TNAME=
```

End

the value :TASKS:. This time, it passes the test, and LOOPER.BAT drops to the :TASKS subroutine. MORE displays ABC.TXT, and then DEL /P gives you the choice of deleting the file. (See **Photo 3**, below, for an example of LOOPER.BAT in action.) When the :TASKS routine is done, DOS closes the second LOOPER.BAT and returns to the FOR... IN...DO in the first LOOPER.BAT, which grabs the next TXT file and repeats the procedure.

Parsing Strings

One of the more interesting techniques *DOS World* has published is to use a slash in a FOR...IN...DO loop to parse strings. Contributing Editor Hardin Brothers explained this trick in a two-part "Batch-File Medic" article ("A Batch-File Breakthrough," #19, January 1995, page 36, and #20, March 1995, page 36), but here's a brief overview.

Essentially, when DOS encounters the slash inside the set portion of a FOR...IN...DO command (the segment enclosed in parentheses), it breaks the subsequent string into two parts, the first containing the initial character and the second containing the remaining characters. For example, this line:

```
FOR %%C IN (/TXT) DO ECHO %%C
```

displays the following two lines:

```
T
EXT
```

Listing 3, EXTRACT.BAT (above), provides an example of how you can use this ability to split a filename's base from its extension. Note that this technique doesn't work with the DOS version that comes with Win95.

Writing Batch Files From Within Batch Files

Occasionally, you may need to create a batch file from within a batch file. **Listing 4**, MESSAGE.BAT (opposite), shows a simple example. It's the beginning of a batch file that performs a task based on the particular day of the week. In this case, the action is simply displaying a message, but you could expand the batch file, for example, to back up different types of files on different days of the week.

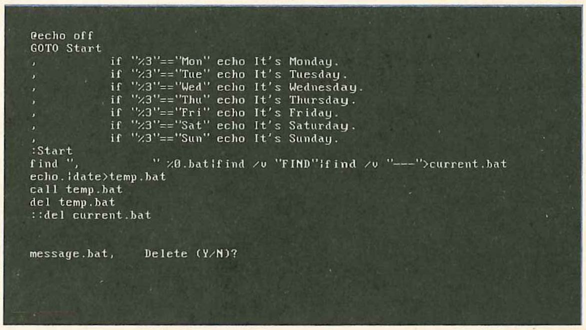
MESSAGE.BAT uses ECHO statements and the redirection symbol (>) to create a batch file called CURRENT.BAT. Next, the ECHO, DATE, and FIND commands combine to create TEMP.BAT, which contains a date string: something like *Current date is Mon 5-20-96*.

Then MESSAGE.BAT runs TEMP.BAT, which interprets *Current* as a program name and runs with the parameters *date*, *is*, *Mon*, and *5-20-96*. Then CURRENT.BAT uses a series of IF statements to determine which message to display. Finally, DOS returns control to MESSAGE.BAT, which deletes TEMP.BAT and CURRENT.BAT.

MESSAGE.BAT demonstrates the traditional way of writing a batch file from within a batch file, and it usually works. But you can run into frustration and plenty of trouble if the lines you're echoing contain pipe and redirection symbols. You can make your life a bit easier by using an alternative technique, shown in **Listing 5**, MESSAGE2.BAT (opposite).

In this example,GOTO jumps the lines that will become CURRENT.BAT. Each line is preceded by a comma and ten spaces.

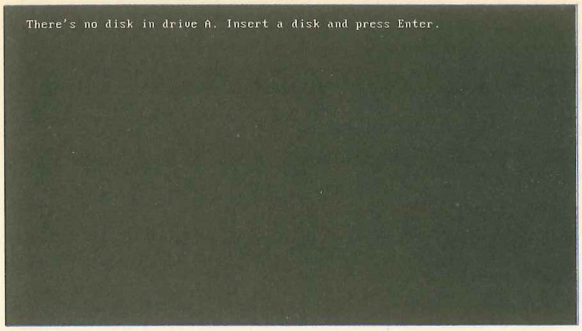
The first line after the :START label uses a series of FIND commands to search MESSAGE2.BAT, extract all lines containing a comma followed by ten spaces, and reroute them to CURRENT.BAT. (The



```
@echo off
GOTO Start
,          if "%3"=="Mon" echo It's Monday.
,          if "%3"=="Tue" echo It's Tuesday.
,          if "%3"=="Wed" echo It's Wednesday.
,          if "%3"=="Thu" echo It's Thursday.
,          if "%3"=="Fri" echo It's Friday.
,          if "%3"=="Sat" echo It's Saturday.
,          if "%3"=="Sun" echo It's Sunday.
:Start
find ",          " %0.bat|find /v "FIND"|find /v "---">current.bat
echo.|date>temp.bat
call temp.bat
del temp.bat
::del current.bat


message.bat,    Delete (Y/N)?
```

Photo 3. LOOPER.BAT uses FOR...IN...DO to display a sequence of files and then give the user a delete option.



```
There's no disk in drive A. Insert a disk and press Enter.
```

Photo 4. By routing PAUSE to the NUL device, you can replace the PAUSE message with one of your own.

first FIND locates the lines, the second one excludes the line with the FIND command, and the third one excludes FIND's header.) When CURRENT.BAT runs, DOS ignores the comma and spaces preceding each line.

Why that particular odd string? The idea is to select a string that won't appear anywhere else in the main batch file.

For example, if you preceded each line with only a comma, the FIND command would locate all lines in MESSAGE2.BAT containing a comma, producing a CURRENT.BAT that included unwanted lines.

Resetting Variables

You can use a simple FOR...IN...DO statement to reset several environment variables in a single line. Let's say, for example, that your batch file sets the variables %FILE%, %OLDPATH%, and %NAME%. You'll want to reset the variables before you choose the batch file. Instead of resetting each one individually, like so:

```
SET FILE=
SET OLDPATH=
SET NAME=
```

use this line:

```
FOR %A IN (FILE OLDPATH NAME) DO
  SET %A=
```

Hiding Command Displays

Many DOS commands display their results, which may clutter the screen and confuse the user.

For example, if you issue the following DOS command:

```
COPY file2.txt file2.txt
```

your system displays the message "1 file(s) copied" when it's done.

To suppress bothersome messages, batch-file programmers route such commands to the NUL device (also commonly called the "bit bucket"). The command above would look like this:

```
COPY file2.txt file2.txt>NUL
```

This technique comes in handy when you want to stop a batch file temporarily with the PAUSE command and display an instruction other than DOS's "Press any key to continue" message.

Here's an example of this trick in action (shown in **Photo 4**, left):

```
@ECHO OFF
ECHO There's no disk in
  drive A. Insert a disk
  and press Enter.
PAUSE>NUL
```

The batch file echoes the second line and tosses PAUSE's message into the bit bucket. ■

Listing 4. MESSAGE.BAT uses ECHO statements to create the program CURRENT.BAT.

```
@ECHO OFF
ECHO IF "%%3"=="Mon" ECHO It's Monday.>CURRENT.BAT
ECHO IF "%%3"=="Tue" ECHO It's Tuesday.>>CURRENT.BAT
ECHO IF "%%3"=="Wed" ECHO It's Wednesday.>>CURRENT.BAT
ECHO IF "%%3"=="Thu" ECHO It's Thursday.>>CURRENT.BAT
ECHO IF "%%3"=="Fri" ECHO It's Friday.>>CURRENT.BAT
ECHO IF "%%3"=="Sat" ECHO It's Saturday.>>CURRENT.BAT
ECHO IF "%%3"=="Sun" ECHO It's Sunday.>>CURRENT.BAT
ECHO.|DATE|FIND "Current">TEMP.BAT
CALL TEMP.BAT
DEL TEMP.BAT
DEL CURRENT.BAT
```

End

Listing 5. MESSAGE2.BAT uses FIND to create CURRENT.BAT.

```
@ECHO OFF
GOTO START
,          IF "%3"=="Mon" ECHO It's Monday.
,          IF "%3"=="Tue" ECHO It's Tuesday.
,          IF "%3"=="Wed" ECHO It's Wednesday.
,          IF "%3"=="Thu" ECHO It's Thursday.
,          IF "%3"=="Fri" ECHO It's Friday.
,          IF "%3"=="Sat" ECHO It's Saturday.
,          IF "%3"=="Sun" ECHO It's Sunday.
:START
FIND ",          " %0.BAT|FIND /V "FIND"|FIND /V "---">CURRENT.BAT
ECHO.|DATE>TEMP.BAT
CALL TEMP.BAT
DEL TEMP.BAT
DEL CURRENT.BAT
```

End

FAQS ON OPTIMIZING WINDOWS

Angling for Top Performance

Looking to squeeze more from your Windows machine? These frequently asked questions on boosting operating efficiency will point you in the right direction.

by Doug Lowe

Where Windows is concerned, your computer can never be too fast. There's nothing more frustrating than staring at that hourglass cursor while your graphics program redraws the screen, a large spreadsheet recalculates, or your database finishes sorting.

One solution to the performance problem is to buy a new computer every few months—that way, you'll always have the fastest system on the block. Even if that were practical, though, it wouldn't be wise, because having a speedy computer doesn't guarantee that Windows will run as fast as possible. To squeeze the highest performance from Windows, you need to do some fine-tuning—whether you have the latest and greatest Pentium running Windows 95 or a venerable 386 running Windows 3.1.

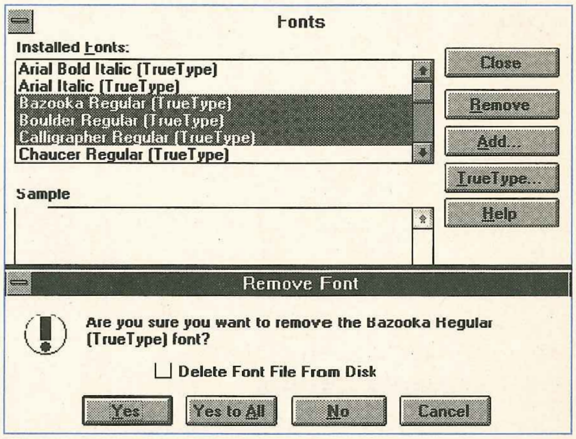
But you won't know whether you can coax your system into operating more efficiently unless you consider all the angles. The answers to these frequently asked questions (also known as *FAQs*) on Windows performance will give you the perspective you need.

FAQ #1 It takes forever for Windows 3.1 to load on my 66MHz 486. Can I do anything to make it load faster?

Yes. Whatever the version—whether you have Windows 3.1, Windows for Workgroups (WFWG) 3.11, or Windows 95—the basic trick is to shorten the list of tasks Windows has to perform whenever you start it.

Begin by reducing the number of programs Windows loads automatically at start-up. In Win3.1 or WFWG, open the Main group's StartUp group and delete the icons for any programs you really don't need to launch automatically. In Win95, right-click on the Start button and choose Explore. Navigate to your start-up folder (C:\WINDOWS\START MENU\PROGRAMS\STARTUP).

Next, eliminate any fonts you don't use regularly. Most people use only a few, but programs such as Corel Draw can install hundreds of typefaces. Because Windows must load them into memory at start-up, removing superfluous fonts can reduce your waiting time significantly.


Fonts
Installed Fonts:
Arial Bold Italic (TrueType)
Arial Italic (TrueType)
Bazooka Regular (TrueType)
Boulder Regular (TrueType)
Calligrapher Regular (TrueType)
Chaucer Regular (TrueType)
Close
Remove
Add...
TrueType...
Help
Sample
Remove Font
Yes
Yes to All
No
Cancel

Are you sure you want to remove the Bazooka Regular (TrueType) font?

☐ Delete Font File From Disk

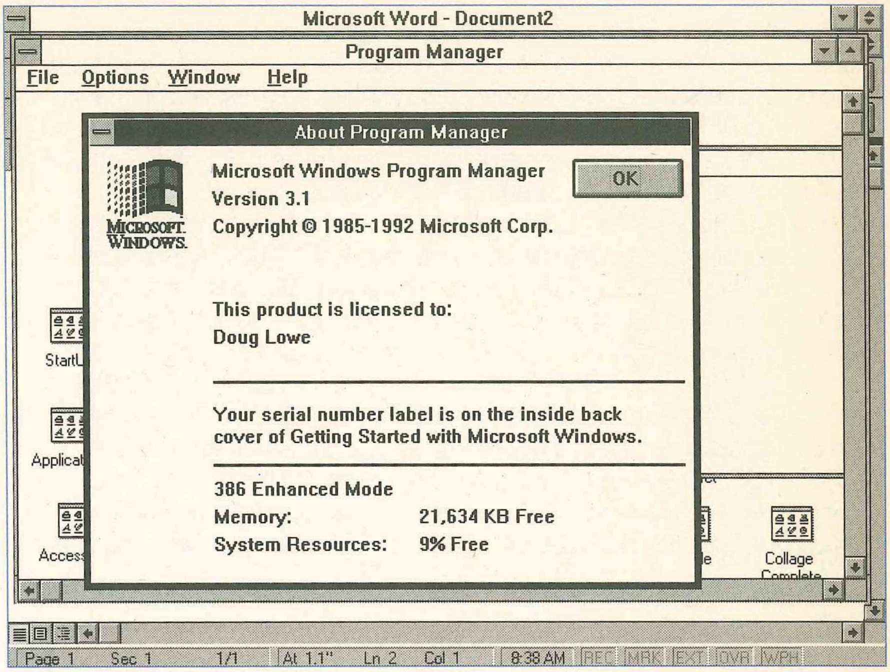
Photo 1. To reduce the time it takes to start Win3.1, you can limit the number of fonts loaded at start-up.

To restrict the list of fonts that Win3.1 or WFWG loads, double-click on the Fonts icon in Control Panel. (See **Photo 1**, opposite.) Hold down the Ctrl key while clicking on the fonts you want to get rid of; then click on the Remove button. When the dialog box appears, leave the Delete Font File from Disk option unchecked and click on Yes to All (or Yes if you've selected just one font). Windows will then remove the designated fonts, but they'll remain on disk so that you can retrieve them easily if you need them later.

If you have Win95, check your \WINDOWS\FONTS folder by clicking on the Start button, choosing Settings/Control Panel, and then double-clicking on the Fonts icon. If the contents of this folder are displayed with icons, choose View/Details to get something resembling a directory listing.

Win95's Fonts tool doesn't supply a separate application for installing and removing typefaces. To cut start-up time, delete one or more fonts as you would any other file. Unless you make other arrangements, Win95 will place the fonts you've told it to remove in the Recycle Bin. Another alternative is to move font files to another folder. To reinstate the fonts later, move the files back to C:\WINDOWS\FONTS. The next time you start, Win95 will add the fonts to its Registry.

Win95 users should also consider one further speed-up measure: decreasing start-up time somewhat by reducing the number of shortcuts on the desktop.



Microsoft Windows Program Manager
Version 3.1
Copyright © 1985-1992 Microsoft Corp.

This product is licensed to:
Doug Lowe

Your serial number label is on the inside back cover of Getting Started with Microsoft Windows.

386 Enhanced Mode
Memory: 21,634 KB Free
System Resources: 9% Free

Photo 2. Use Program Manager's Help About option to keep tabs on your system resources.

FAQ #2 How much memory do I need to run Win3.1 and Win95 efficiently?

Good question. Microsoft claims that you can run Win3.1 in 2MB of memory (RAM), but it recommends 4MB. Hah! Although you can get Windows up and running with 4MB, most users with only that much RAM quickly run into trouble. With so little memory available, Windows will have to use part of your hard disk as "virtual" memory. That means that it will be constantly moving data to and from your hard drive's disk-swap file, which can slow performance to a crawl.

In reality, consider 8MB of memory the minimum for running Win3.1 with acceptable performance—especially if you plan to use full-featured programs such as Microsoft Word for Windows, Excel, and PowerPoint. If the only programs you use are Notepad, Paintbrush, and Windows Write, 4MB is probably sufficient.

If your computer contains 2MB of RAM and can accept a 4MB memory upgrade chip, that will get you to 6MB; that isn't as good as 8MB, but it's better than 2MB and might be enough for your needs. Many "experts" say you should consider 12MB or 16MB the minimum, and I must admit that all my computers contain at least 16MB. I've found, however, that 8MB is enough for most users I meet. Unless you're creating animation for the sequel to *Toy Story*, 8MB should suffice.

Although most users assume that Win95 requires more memory than Win3.1, that isn't the case. Microsoft's stated objective was to have Win95 run as well in 4MB as Win3.1, and it achieved that goal: Both Windows versions run very poorly with 4MB of RAM. And both run well with 8MB.

FAQ #3 My computer contains 16MB of memory, but I still get "Out of memory" messages under Win3.1. Will adding more memory help?

You've hit Windows 3.1's dreaded "system resource limit." Although Windows was designed to take advantage of as much as 4GB of RAM (yes, that's four billion bytes), Microsoft allocated just two 64K memory blocks, or *resource heaps*, to take care of critical parts of Windows. In these skimpy memory areas, Windows has to keep track of elements such as open windows, dialog boxes, fonts, graphics objects on screen, menus, and other Windows paraphernalia. After a while, heap space can get tight.

When you run Windows on its own—without any other programs—its resource heaps are only about 15 percent full, which leaves about 85 percent of your heap space free. But as you use programs, these heaps fill up. High-powered programs such as WordPerfect and Word for Windows each typically drain resource heaps by 15 to 20 percent. Run three or four of these programs together, and your system's resource heaps are depleted quickly.

You can monitor the percentage of free system resources by choosing the Help About command in Program Manager. (See **Photo 2**, page 37.) When free heap space gets down to the 15-percent mark, Windows begins to act funny. Sometimes it refuses to display text or fails to draw dialog boxes completely. And on occasion you'll get a message indicating that you're out of memory. This message is misleading; a computer with 32MB will run out of resource-heap space just as quickly as a program with 4MB, so adding RAM won't eliminate the memory-shortage message.

What can you do if resources are a problem? Several things. First, find out whether any of your programs "leak" resources by failing to return them to Windows when they're finished. To check on this, start Windows; then start and exit a few programs to stabilize the resource heaps. Choose the Help About command from Program Manager, and note the System Resources percentage.

Now start the suspect program, use it for a few moments, and then exit the program. Use Program Man-

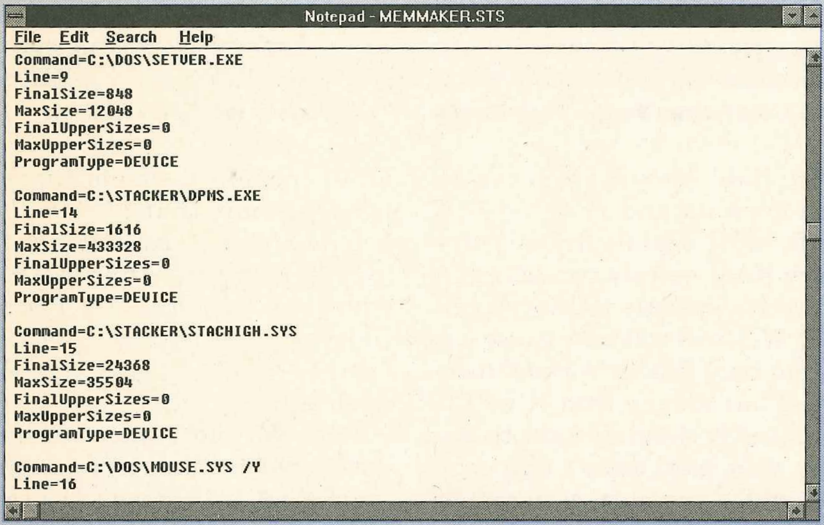
Windows Tip

More Memory Is Made of This

Although DOS 6.x's MemMaker utility does a pretty good job of freeing up conventional memory, it's by no means perfect. For one thing, it doesn't vary the order in which device-driver programs and memory-resident programs load in CONFIG.SYS and AUTOEXEC.BAT. Because some programs need a larger amount of memory when loading than when running, this shortcoming means that you could end up wasting valuable space.

The solution is to change the loading order yourself. Fortunately, it's not a hit-or-miss proposition; you can use a file called MEMMAKER.STS to guide you. This file, which MemMaker creates or updates after optimizing but before restarting your computer, contains information on optimization, memory configuration, and the size of memory-resident programs.

MEMMAKER.STS resides in the same directory as MEMMAKER.EXE, usually C:\DOS. To get a look at it, load it into a text editor, such as Notepad (in the Accessories group). For every driver and program it loads, MEMMAKER.STS displays the loading size (MaxSize) and the installed size (FinalSize). The trick is to look for drivers and memory-resident programs whose loading and final sizes differ the most. To fit more programs into upper memory, edit your CONFIG.SYS and AUTOEXEC.BAT so that the programs requiring more loading space are listed before those with modest loading requirements. Remember, you must shut down Windows 3.1 or Windows for Workgroups before running MemMaker.



```
Command=C:\DOS\SETVER.EXE
Line=9
FinalSize=848
MaxSize=12048
FinalUpperSizes=0
MaxUpperSizes=0
ProgramType=DEVICE

Command=C:\STACKER\DPMS.EXE
Line=14
FinalSize=1616
MaxSize=433328
FinalUpperSizes=0
MaxUpperSizes=0
ProgramType=DEVICE

Command=C:\STACKER\STACHIGH.SYS
Line=15
FinalSize=24368
MaxSize=35504
FinalUpperSizes=0
MaxUpperSizes=0
ProgramType=DEVICE

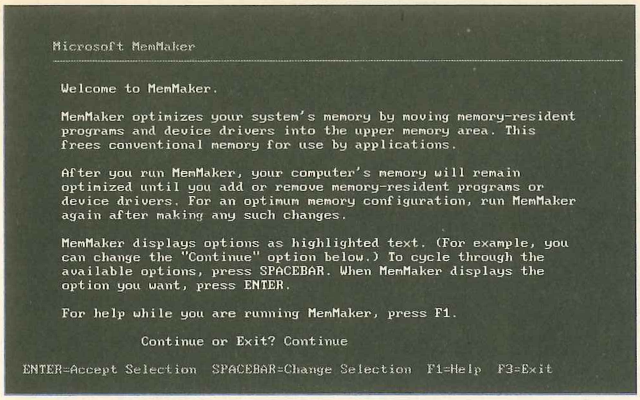
Command=C:\DOS\MOUSE.SYS /Y
Line=16
```

The MEMMAKER.STS file contains information on optimization, memory configuration, and the size of memory-resident programs, which lets you edit your AUTOEXEC.BAT and CONFIG.SYS files to change the order in which programs load.

For the most part, Win95 handles memory optimization on its own. If your CONFIG.SYS and AUTOEXEC.BAT files still contain references to older drivers and memory-resident programs, however, it's a good idea to use MemMaker to put them into upper memory. You don't have to execute Win95 manually to do that. When you tell Win95 to run MemMaker (by double-clicking on C:\WINDOWS\MEMMAKER.EXE), it brings up a box warning you that this program must run in MS-DOS mode. If you choose to continue, Win95 will close all other programs.

—Marilyn McMaster

ager's Help About command again to check the free system resources. If the percentage of free resources is lower, contact the manufacturer of the program to find out whether the company offers a new software version that releases resources properly.



```
Microsoft MemMaker
------------------------------------------------------------------------------

 Welcome to MemMaker.

 MemMaker optimizes your system's memory by moving memory-resident
 programs and device drivers into the upper memory area. This
 frees conventional memory for use by applications.

 After you run MemMaker, your computer's memory will remain
 optimized until you add or remove memory-resident programs or
 device drivers. For an optimum memory configuration, run MemMaker
 again after making any such changes.

 MemMaker displays options as highlighted text. (For example, you
 can change the "Continue" option below.) To cycle through the
 available options, press SPACEBAR. When MemMaker displays the
 option you want, press ENTER.

 For help while you are running MemMaker, press F1.

            Continue or Exit? Continue

ENTER=Accept Selection  SPACEBAR=Change Selection  F1=Help  F3=Exit
```

Photo 3. MemMaker automates the procedure for optimizing your system's memory use.

Win95 places more heap space at the disposal of your applications; consequently, out-of-memory errors crop up less often. Windows 95 also provides better defenses against apps that leak resources. First, more system resources are available, so leaky programs pose less of a problem. In addition, Win95 cleans up after older Windows 3.x programs, by taking back the resources they were allocated. Windows 95 reclaims resources only after you close down all Windows 3.x programs, though, because these applications can share the same resources.

If you find yourself running out of Win95 resources, quit all your Win3.x programs, and then load them again. Admittedly, that's a pain, but it's less painful than restarting Windows, which was usually the only way to deal with leaking resources under Win3.1.

FAQ #4

I'm running Windows 3.1 on an older 386 system. Will a processor upgrade help? Should I attempt to do it myself?

A processor-chip upgrade will undoubtedly improve your Windows performance, and you can probably do it yourself if you're technologically inclined.

You should be able to get a 486 upgrade chip for under $200 from a mail-order supplier. Before you call, though, find out as much information as you can about your computer: manufacturer, model number, CPU type, clock speed, amount of memory, BIOS maker and version number, and so on. (The BIOS maker and version number are displayed on screen when you start your computer.) The sales representative should be able to guide you in selecting the proper upgrade chip. Be sure to ask whether it's compatible with your BIOS and whether you'll need to change any other components.

Also consider a complete motherboard replacement. It's more work than a simple processor-chip replacement and costs considerably more money, but you'll end up with a more-powerful system overall. In addition, the motherboard will be better matched to the processor chip, and you'll have the benefit of high-speed cache memory and 32-bit slots for high-speed video and disk-I/O cards.

A 75MHz Pentium motherboard costs about $500, but you'll have to purchase memory separately. If you're upgrading a 386 or older 486, you probably won't be able to reuse your current memory; older motherboards used 36-pin memory chips, but newer boards require 72-pin chips.

FAQ #5

I do a lot of graphics work, and Win3.1 takes forever to redraw the screen. Is there anything I can do to speed it up?

Start by making sure you're using the right video driver for the card. In Program Manager, open the Main group; then double-click on the Windows Setup icon. Note which video driver is listed next to the entry Display; it should indicate a video driver supplied by the manufacturer, which should therefore be optimized for your video card. If the Display line says simply *VGA* or *Super VGA*, use the Change System Settings command in the Options menu to install the driver that came with your video card.

Next, find out which resolution and color depth the video display is using. If resolution is set to 800 by 600 pixels with 64 million colors, you may improve performance by switching to 65,384 colors. Your graphics won't look as nice, but the display should redraw images faster. For even better performance, use the Setup icon in the Main group to switch to 256-color mode.

If changing your video driver and switching to fewer colors doesn't help or isn't an acceptable alternative, you may want to consider adding a high-performance video-accelerator card to your system. Cards of this type include circuitry that handles most of Windows' graphics operations, freeing the CPU for other chores. You can get a decent accelerator card for about $200. For example, I recently saw a Hercules Dynamite card with 2MB of memory for $189. Of course, if you're really a video fanatic, you can spend considerably more than that.

FAQ #6

I'd like to run a couple of my DOS games under Windows, but I don't have enough memory. Do I have to resort to something like Quarterdeck Software's QEMM to free up more space?

Although Win3.1 lets Windows applications sidestep the old MS-DOS 640K memory limit, the DOS-based programs you want to run within Windows still have to fit

HOW MUCH CACHE IS ENOUGH?

There are no hard-and-fast rules for determining optimum cache size when using 32-bit file access, but the accompanying table (below) provides reasonable starting values.

If you don't have a CD-ROM drive and you rarely access your floppy drives, remove the SMARTDRV line from your AUTOEXEC.BAT file. If you frequently access your floppy drives, set SmartDrive's Windows cache to 384K. If you use a CD-ROM drive, you should experiment with the size of your Windows cache, starting with 512K and working upwards until your CD-ROM applications perform adequately.

RAM	Recommended Cache Size
4MB	1024K
8MB	2048K
12MB	3072K
16MB	4096K

—D.L.

into *conventional memory*, that first 640K of system memory. To make matters worse, Win3.1 itself uses up precious conventional memory, so that less is available for a DOS window, also called a *Windows DOS session* or *DOS box*, than would be free if you shut down Windows 3.1 and worked in DOS alone.

Fortunately, upper memory—the section of memory between the 640K and 1MB marks—is still available to a DOS session running under Windows. You can use this area to store certain parts of DOS, including device drivers, which leaves more conventional memory for your programs. The easiest way to set up your computer so that Win3.1 DOS sessions use upper memory is to put MS-DOS's MemMaker utility to work.

First, shut down Win3.1 completely. At the DOS prompt (usually `C:\>` followed by a blinking underline), type `MEMMAKER`. (See **Photo 3**, page 39.) Follow the instructions on screen. Choose Express Setup (not Custom). MemMaker will automatically reboot your computer several times and make the changes needed to configure your memory more efficiently.

If MemMaker solves your problem, consider yourself fortunate. If not, try the accompanying tip, "More Memory Is Made of This" (page 38). If you're still short, by all means try a product like QEMM. Third-party memory optimizers generally do a better job of seeking out the nooks and crannies of your computer's upper memory to free up more conventional RAM.

If you're having trouble running your DOS-based games in Win95, you may need to try MS-DOS mode. When you enter this mode, your computer reboots itself without Windows. To set up a game to run in MS-DOS mode, right-click on the game's icon (or on a shortcut icon to the game) and select the Properties option. Click on the Program tab; then click on the Advanced button and set the MS-DOS Mode option.

FAQ #7 **I know that defragmenting is supposed to be good for a hard disk, but I'm vague on the details. Will my Windows computer run faster after I defragment? How often should I do it?**

Defragmenting your hard disk periodically is a good idea, but it probably won't improve your computer's performance noticeably, unless your disk drive is very old and slow.

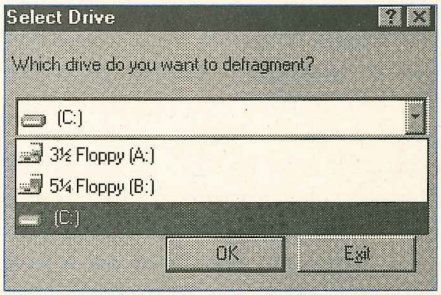
Because of the way MS-DOS parcels out disk space, many hard-disk files aren't stored in adjacent sectors. Instead, they're stored piecemeal—a portion of the file here, a bit over there. Wherever DOS can find free disk space, it plunks down a piece of the file.

Fragmentation of this sort can slow down disk reads and writes slightly and also increases the likelihood of losing portions of files. The more you use your computer to create and delete files, the more fragmented your disk becomes. Run DOS's Defrag utility once in a while to straighten up your disk. Defrag rearranges each file so that it's stored in adjacent disk sectors. Some people are downright phobic about fragmentation, so they run Defrag every day. A more sensible approach might be to run it every month or so. Fragmentation isn't such a serious problem that it requires your daily attention.

To use Defrag in Windows 3.1 or WFWG, shut down Windows and type `DEFRAG` at the command prompt. Then just follow the instructions on screen.

While you're at it, run the ScanDisk utility, too. ScanDisk searches your disk for problems associated with excessive fragmentation—lost clusters and cross-linked files—and tests every sector of your hard disk to make sure the surface is free of problems.

I recommend a full surface scan each time you defragment your disk, and a less time-consuming check for lost clusters and cross-linked files more often—at least once a week. Like Defrag, ScanDisk is easy to use. Just type `SCANDISK` at the DOS prompt and follow the instructions.

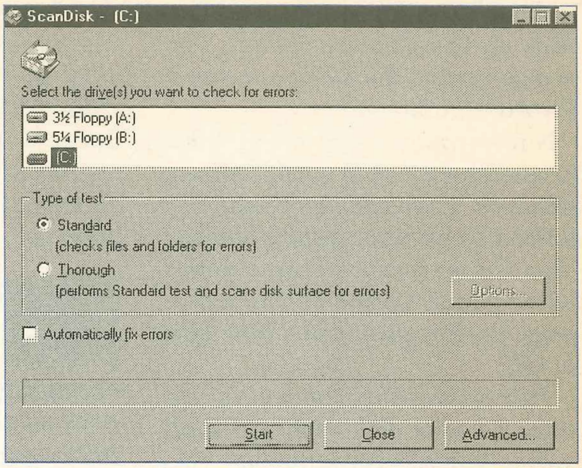


Select Drive

Which drive do you want to defragment?

Photo 4. Although defragmenting your hard disk won't dramatically improve its performance, it does reduce the chance of losing pieces of files.

If you use Win95, you don't need to shut down Windows to use ScanDisk or Defrag. Open an Explorer window, and navigate to the top of the tree in the left pane. To scan or defragment drive C, right-click on its icon, choose Properties, and click on the Tools tab in the Properties dialog box. Choose Check Now to scan your disk and Defragment Now to defragment it. (See **Photos 4** and **5**, opposite and right.)



Select the drive(s) you want to check for errors:

3½ Floppy (A:)
5¼ Floppy (B:)
(C:)

Type of test

● Standard
(checks files and folders for errors)

○ Thorough
(performs Standard test and scans disk surface for errors)

☐ Automatically fix errors

Photo 5. ScanDisk searches your disks for surface defects, lost clusters, and cross-linked files.

FAQ #8 Should I be using SmartDrive with Win3.1, and if so, how should I configure it?

To ensure top performance under Win3.1, you should definitely use SmartDrive, unless you're using a third-party disk-caching program such as those that come with Symantec's Norton Utilities, Central Point's PC Tools, or Artisoft's LANtastic.

SmartDrive works its magic by attempting to read data your program will need and storing that data in a special memory area called a *cache*. When the application you're using requests data that's in the cache, SmartDrive retrieves it from memory instead of from your hard disk. Memory delivers data far faster than a hard drive can.

Place the command to load SmartDrive near the beginning of your AUTOEXEC.BAT file. In fact, unless you've deleted the SMARTDRV command, it should already be in AUTOEXEC.BAT, because the DOS Setup program adds it automatically. To find out whether your AUTOEXEC.BAT loads SmartDrive, choose File/Run from Program Manager or File Manager, type SYSEDIT, and press Enter. Windows will display several important system files; AUTOEXEC.BAT is on top.

If you find a SMARTDRV command in AUTOEXEC.BAT, leave it alone unless you're familiar with the command's syntax. During setup SmartDrive makes an educated guess at how to configure a disk cache best, basing its decision on the amount of memory in your system. Though SmartDrive offers a bevy of switches that let you tweak its performance, I can't recommend any settings guaranteed to deliver better performance than the defaults.

One option worth playing with, however, is write caching. In MS-DOS 6.2 and 6.22, Setup adds a SMARTDRV command that includes the /X switch, which disables write caching on all drives. If your SMARTDRV command includes this switch, you may want to consider removing it. Doing so permits SmartDrive to apply its performance magic to disk writes as well as reads.

Bear in mind, however, that write caching is inherently risky: If lightning strikes at the wrong moment, important data may not be written safely to disk before the power goes out. Fortunately, however, SmartDrive never holds a cached write for longer than three seconds without writing it to disk, so the risk is small. And the performance benefit can be significant.

Machines running Win95 don't need SmartDrive for disk caching, because a more-efficient cache is built into Windows itself. Vcache doesn't take up conventional or upper memory, as SmartDrive does, and, unlike SmartDrive, Vcache can cache CD-ROMs as well as networked drives. In addition, you don't have to decide how much memory to allocate to the cache; Vcache examines read/write activity and free memory on an ongoing basis and sets aside an appropriate amount.

FAQ #9 I've heard that Windows for Workgroups 3.11 has a 32-bit file system, just like Win95. How can I activate it, and how will it benefit me?

You've heard right. Other than networking support, the best thing about WFWG 3.11 is the improved disk performance you get by activating its 32-bit file-access feature. This feature lets Windows for Workgroups bypass MS-DOS completely when reading data from or writing data to your disks.

Microsoft claims that 32-bit file access improves disk performance by as much as 50 percent over Win3.1's, and most benchmark tests I've seen support that claim. With 32-bit file access enabled, programs load faster, documents open faster, database queries run faster, Print Manager prints faster, and, well, you get the idea. Any Windows operation that depends on disk access runs faster when you turn on 32-bit file access.

As a bonus, the benefits of 32-bit file access are available to programs you run under WFWG. That's a surefire way to boost the performance of disk-intensive DOS programs, such as databases and spreadsheets. Unfortunately, the performance benefits of 32-bit file access don't carry over when you shut down WFWG and work at the DOS prompt; instead, DOS uses its old 16-bit file-access program.

To activate 32-bit file access in Windows for Workgroups, pop open Control Panel, double-click on the 386 Enhanced icon, click on the

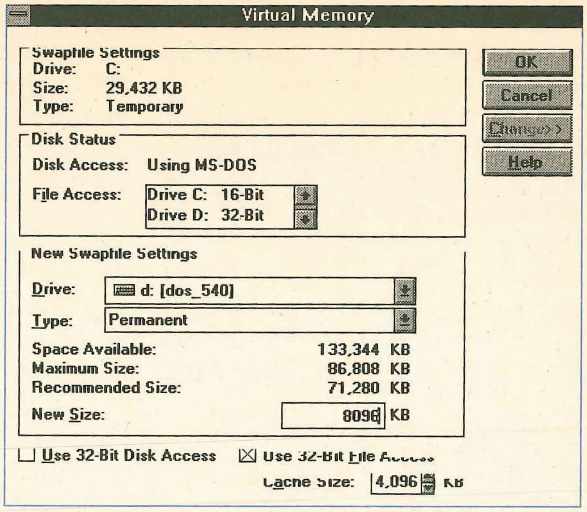
Virtual Memory button, and then click on the Change button. That brings up the dialog box shown in **Photo 6** (right).

Now click on the Use 32-Bit File Access check box if it isn't already selected. Then set the Cache Size control to an appropriate amount. (See the accompanying sidebar, "How Much Cache Is Enough?," page 40, for guidance.) Now click on OK.

Thirty-two-bit file access provides its own disk caching, duplicating SmartDrive's function. As a result, you should remove the SMARTDRV command from your AUTOEXEC.BAT file, unless you want to use it to cache floppy disks or CD-ROM drives.

Thirty-two-bit file access works only for hard-disk drives. You also can remove the SHARE command from AUTOEXEC.BAT, because 32-bit file access handles that function, as well.

Unfortunately, 32-bit file access is available only in WFWG 3.11; plain old Windows 3.11 doesn't include this improved file system. As this question notes, however, Win95 does.



Swapfile Settings
Drive: C:
Size: 29,432 KB
Type: Temporary

Disk Status
Disk Access: Using MS-DOS
File Access: Drive C: 16-Bit
Drive D: 32-Bit

New Swapfile Settings
Drive: d: [dos_540]
Type: Permanent
Space Available: 133,344 KB
Maximum Size: 86,808 KB
Recommended Size: 71,280 KB
New Size: 8096 KB

☐ Use 32-Bit Disk Access ☒ Use 32-Bit File Access
Cache Size: 4,096 KB

Photo 6. To activate 32-bit file access or create a permanent swap file, double-click on Control Panel's 386 Enhanced icon and click on the Virtual Memory and Change buttons.

FAQ #10

I've heard people say that changing the size of your swap files is supposed to make Win3.1 run more efficiently. Just what is a swap file, and how can I use it effectively?

The very best thing you can do to improve memory use under Win3.1 and WFWG—next to buying 64MB, of course—is to set up a permanent swap file. A swap file is an area on your hard disk that Windows uses as a substitute for memory whenever it runs out of real memory.

Windows permits two types of swap files: temporary (the default) and permanent. Windows creates a temporary swap file whenever you start Windows. When you exit Windows, your system deletes the file. A permanent swap file is one that remains on disk even after you exit Windows.

The advantage of a permanent swap file is that Windows doesn't have to take time to allocate disk sectors to it. The disadvantage is that you have to give up disk space even when Windows isn't running.

To create a permanent swap file, open Control Panel, double-click on the 386 Enhanced icon, click on the Virtual Memory button, and then click on the Change button. (See **Photo 6**, above.) In the resulting dialog box, change the Swapfile Type field to Permanent; then type a reasonable size for the file in the New Size field. Don't believe Windows if it proposes a huge amount of space—say, 71MB. It should be able to get by with 4 to 8MB.

Fortunately, you don't have to play with the swap-file settings in Win95. Because Microsoft figured out a way to make a temporary swap file work more efficiently, you can let Win95 decide how much disk space to allocate for it. ■

Windows 3.1 Tip

Two-Way Street

Windows 3.1 makes it easy to copy a screen of information from any DOS application to the Clipboard: Simply press the Print Screen key. Inserting text from the Clipboard into a DOS program takes more steps, but once you master the technique, you'll find it a great time saver. The following directions assume that you're running Windows in 386 Enhanced mode.

First, position the cursor in your DOS application at the point where you want to insert the screen of text you placed on the Clipboard. If the program is running in full-screen view, press Alt+Enter to put it in a window. Then click on the Control-menu button in the window's upper-left corner. When you choose Edit/Paste, Windows will paste the screen of information into your DOS program.

If you want to transfer a couple of lines of text from one windowed DOS program to another, open the Control menu, choose Edit/Mark, and use your mouse to highlight the text you want to transfer. Choose Edit/Paste to place the text on the Clipboard. Switch into the DOS program to which you want to transfer the text by pressing Alt+Tab as many times as necessary. Paste in the contents of the Clipboard as before.

If you want to transfer text from a Windows application to a DOS application, the procedure is simpler. Highlight the text you want to copy; then press Ctrl+Ins to place it on the Clipboard. Use Alt+Tab to switch back to the windowed DOS application. Use Edit/Paste to transfer the text.

There's just one possible hitch. Sometimes when you use the Clipboard to transfer data between two DOS programs or a Windows program and a DOS program, a few characters get lost in translation. If that happens, use PIF Editor (in the Main group) to open the PIF (program-information file) for the DOS application, and turn off the file's Allow Fast Paste option.

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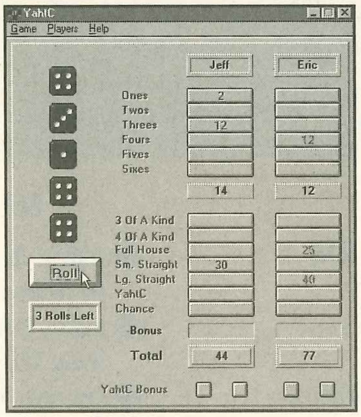
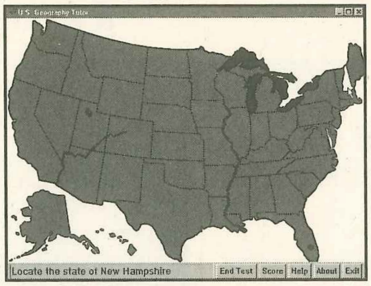


YahtC is a multiplayer dice game.



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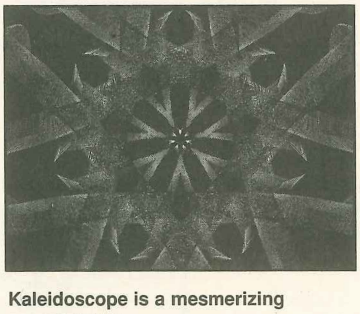

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GUIDE TO ERROR MESSAGES

Mending the Error of Your Ways

When DOS talks back to you, pay attention. The faster you tune in to what it's telling you, the faster you can get back to work.

by Marilyn McMaster

Computer trouble comes in many shapes and sizes, and some days I feel as though I've met every last one of them. Then MS-DOS or Windows throws me a new curve—a weird glitch or an unfamiliar error message. I've made so many computing mistakes in my time that these days I usually understand what DOS is trying to tell me when it lodges a complaint. Still, every once in a while I'm unsure what to do next, although I've learned that temper tantrums only make matters worse.

When you're working against a deadline, taking time to puzzle out a problem—either your own or one besetting a friend or coworker—can be an annoying experience. To save you some of the accumulated frustration of years of fixing major and minor setbacks, I've compiled a list of suggestions for dealing with the 39 error messages you're most likely to encounter.

Because most of Windows' complaints are more-intelligible derivatives of MS-DOS messages, I'll focus here on explaining the reasons why DOS sometimes objects to your input. The accompanying sidebar "The Big Five" (pages 46 and 47) describes the most troubling Windows error messages and how to cope with them.

If you've already seen it all, you may not need this advice. But perhaps you know some inexperienced users who'd interrupt you less often if they knew what to do when DOS takes them to task.

FILE NOT FOUND
BAD COMMAND OR FILE NAME

As a dropout from the Mavis Beacon school of typing, I see these messages all too often. They're DOS's way of saying that it can't locate a file or program mentioned in your command. Usually a simple spelling error is at fault.

If you know what went wrong, simply retype the command correctly. If you can't figure out why DOS is griping, use the checklist in the sidebar "Righting Wrongs" (page 48) to pinpoint the source of the mixup.

DUPLICATE FILE NAME OR FILE NOT FOUND

This command may rear its ugly head when you're renaming a file. It means that the new name you supplied already exists or that DOS can't locate the file you're trying to rename.

This is another instance in which the accompanying checklist in "Righting Wrongs" can help you sort out the problem.

FILE CANNOT BE COPIED ONTO ITSELF

More evidence of carelessness. Most likely, you've forgotten to specify a destination for a file you're copying. (The destination is

THE BIG FIVE

If you understand the major DOS messages, you should have no trouble deciphering their more-literate Windows counterparts. Five Win3.1 and Win95 messages deserve special instructions, however:

- **Not enough memory.** Open enough windows in Win3.1, and you'll see this message eventually. Boosting system memory from may help some, but it won't eliminate the trouble. The problem isn't lack of system memory, but lack of breathing room in the memory heaps (*heaplets* is more like it) that keep track of all the windows and other elements you pack on screen. Because Microsoft wanted Win3.1 to run on a 286, heap storage was limited to four 64K heaps. Sounds puny, but if you're careful you can usually live with these restrictions. Here are six suggestions:

1. Eliminate wallpaper; it gobbles resources. Large images are the worst offenders. You can turn off wallpaper by choosing Main/Control Panel/Desktop.
2. Limit the number of programs open at the same time, and be careful not to open two sessions of the same program simultaneously—it's easy to do by mistake.
3. If you're using the Clipboard to transfer images or large hunks of information, clear it out when you're done. Double-click on Main, then on Clipboard Viewer. Open the Edit menu, click on Delete, and choose OK.
4. Go to Main/Control Panel/Fonts and reduce the number of active fonts on your system. Be sure to uncheck the Remove Font File from Disk option first.
5. Watch for leaky applications—programs that don't give their memory back to Win3.1 when you close them. Choose Help/About Program Manager before and after quitting a program to see whether available memory increases. If not, find out whether the software developer offers a fix.
6. If you leave your computer on all the time, restart Win3.1 periodically.

Out-of-memory errors should crop up less frequently in Win95, because Microsoft greatly expanded the heap space. In addition, drivers to control your mouse, CD-ROM drive, sound card, disk cache, and hard drive are built in and thus no longer consume extra conventional or upper memory. Win95 also checks up after leaky Win3.1 applications and forces them to give back memory when you shut them down.

- **Application Error PROGRAM caused a General Protection Fault** (Win3.1) or **System Error** (Win95). Bad news: A program has committed an unforgivable error, and you'll have to reboot. If the program has an open file and you haven't saved in a while, you're going to lose data. Often you find yourself in this pickle because an application writes to an area of memory not allocated

also called the *target*; both terms refer to the drive and directory where you want to place a copy of the file in question.) If you don't supply a destination, DOS's first instinct is to copy the file into the current directory, but copying a file onto itself is taboo.

If you're in the destination directory, however—C:\BACKUP, for example—and the file is in another directory, say C:\LETTERS, DOS won't bat an eye if you omit a destination directory:

```
COPY C:\LETTERS\JB_0704.TXT
```

In this instance, DOS blithely copies the file to the current directory, C:\BACKUP.

Other possible reasons for this message include using wildcards inappropriately or forgetting a space between the filename and the destination drive. It may also mean that you've gotten tangled up with DOS's SUBST command, which lets you assign a previously unused disk-drive letter to a directory name.

FILE CREATION ERROR

Whenever DOS or a DOS program issues this message to tell you it can't create a file or replace an existing file, you should immediately suspect that a write-protected file of that name already exists. Use ATTRIB *filename.ext* to check on the file. If there's no write protection or if removing it has no effect, and you're trying to store the file in the root directory, the directory may be full.

Although subdirectories may contain an unlimited number of files, DOS restricts the number of entries in the root. That limit varies according to the formatting method and the size of the drive, but you can store at least 128 files.

If there's plenty of directory space, use ScanDisk to put the disk through its paces and fix any problems it finds.

INSUFFICIENT DISK SPACE

This message usually crops up when you use COPY to copy a series of files to a floppy disk using wildcards, such as *.PCX, which means all files with the extension PCX. The problem is that it's also likely to pop up midway through the copy process.

If that happens to you, don't try to figure out which files you've copied; just delete all files from the floppy disk and start again. Then to it. Other possible causes include a mixup between a device driver and hardware, bad sectors in a swap file (hard-disk space used as memory), or overextended system resources.

When you encounter a Win3.1 GPF, your first order of business is getting Windows running again. Take these steps:

1. Copy down the error-message information for future reference.
2. Click on Close to shut the dialog box and quit the problem application. (If you choose the other option, Ignore, Windows will most likely ignore you, although sometimes if you keep making this choice, Windows will give in eventually. It's worth clicking 20 to 30 times if you've got valuable data you want to save before Windows closes the errant application.)
3. Quit the other applications running; use Save As to save data in open files under new names. This ensures that a corrupt file in memory won't overwrite a good file on your disk.
4. Exit Windows and reboot.

GPF errors are largely beyond your control. If they occur regularly, keep a log and look for trends. If a particular program is giving you trouble constantly, uninstall and then reinstall it. If you get frequent random errors, consider recreating your swap file:

1. Close all applications.
2. Choose Main/Control Panel/386 Enhanced.
3. Choose Virtual Memory/Change and write down the settings.
4. Select None and quit Windows to wipe out the current swap file.
5. Use ScanDisk and Defrag to clean up your hard disk.
6. Restart Windows and restore your previous swap-file settings.

System errors are the Win95 equivalent of GPFs, and, like GPFs, they demand that you reboot. Usually, the dialog box offers a Details button. If you click on it, you'll get a lot of information of interest only to experienced programmers, but you'll also see the name of the file that's giving Win95 trouble. If the system error recurs, sometimes you can solve ithe problem by reinstalling the specified file.

- **This application has violated system integrity and will be shut down** (Win3.1) or **This program has performed an illegal operation** (Win95). Less serious than the two messages in the previous example, these complaints tell you that Windows caught an application attempting to do something illegal. Often Windows cuts a program short because it's about to write to an area of memory in which it shouldn't be dabbling. You can shut down the application or abort the illegal action and restart the program. Generally, it's best to close down the errant application. If Windows continues to act finicky after you restart, close down all your applications, quit Windows, and reboot.

—M.M.

use the ATTRIB command to set the archive attribute (indicating that the file has been modified and should be backed up) for the files you intend to copy. For example:

```
ATTRIB +A C:\ART\*.PCX
```

After that, use XCOPY *path\filespec.ext* /M A:. For the command above, the correct line would be the following:

```
XCOPY C:\ART\*.PCX
```

Not only is XCOPY faster than COPY, but it also resets each file's archive attribute as it copies the file.

DOS issues an error message when the first floppy disk fills. Remove that disk, put in a new one, and press F3 followed by Enter to issue another XCOPY /M command. DOS will copy only files whose archive attributes are set.

INVALID PARAMETER

TOO MANY PARAMETERS

REQUIRED PARAMETER MISSING

INVALID SWITCH

SYNTAX ERROR

The question most DOS users have when they first encounter the top three messages is "What's a parameter?" In essence, a parameter is extra information you provide to DOS to control more precisely how it will execute a particular command or program.

In the following line, for instance, the word EDIT is a command that tells DOS to load its text-editor program, EDIT.COM, and TEST.TXT is a parameter:

```
EDIT TEST.TXT
```

Including the parameter TEST.TXT tells DOS to load this file after starting the editor. Switches—sequences such as /S that you can tack onto a DOS command (for example, DIR /S)—are another sort of parameter.

If DOS tells you there's something wrong with a parameter or switch, there's probably a typo somewhere. Maybe your fingers slipped, and you accidentally typed `DIR /D` instead of `DIR /S`. Or perhaps you left out a parameter entirely, or omitted a colon after a driver letter or a slash in front of a switch.

But then again, maybe DOS only thinks there's a parameter problem, because you inserted a space where it didn't belong. For example, this command is incomprehensible to DOS:

```
COPY C:\LETTERS\ JB_0619.TXT A:
```

But it can decipher this one easily:

```
COPY C:\LETTERS\JB_0619.TXT A:
```

If you check over your command and still can't find your mistake, consult your DOS manual or the documentation for your DOS application. On second thought, if you have a recent DOS version, don't bother with your manual unless it's meatier than the docs Microsoft provides. With DOS 6.x, your best bet is to call up on-line help by typing `HELP`, a space, and the name of the command that's giving you trouble. If you merely need a quick summary of the switches for a command, type the command's name, a space, and `/?`, as in `DIR /?`.

The same advice applies to syntax errors, the DOS equivalent of a grammar mistake. If you've checked your typing and don't notice missing information, extraneous spaces or characters, or a bad switch, it's time to get on-line help.

RIGHTING WRONGS

By far, the biggest cause of DOS error messages isn't hardware or software malfunction; it's user error. When you see a message such as "File not found" or "Too many parameters," don't waste time dressing down DOS; the mistake is probably yours. If you can't find your gaffe, try running through this checklist of important questions:

- **Did you type the name of the file or command correctly?** Check your spelling and be sure to include a file extension when necessary. You don't need to include an EXE, COM, or BAT extension if you're telling DOS to start a program, but if, for instance, you're trying to copy a file, even an executable file, you must add the file's extension. And you've got to use a space to separate a command from any information that follows. But don't put a space in a DOS filename, unless you're in a DOS session under Win95. DOS 95's new long-filename support lets you create filenames containing spaces and as many as 255 characters. You may also include periods (.), commas (,), semicolons (;), plus signs (+), equal signs (=), and brackets ([ ]). To use such filenames in DOS commands, however, you've got to surround the file specification with double-quotation marks. This command, for instance, copies a single file to drive A:

```
COPY "C:\FINANCE\JAN ACTUALS.WKS" A:
```

This command copies a group of WKS files to drive A:

```
XCOPY "C:\FINANCE\*ACTUALS.WKS" A:
```

- **Is DOS looking in the right directory and on the right disk?** Unless you provide a drive and directory when you run a program, DOS looks in the current directory and those listed in your AUTOEXEC.BAT's PATH statement. You can get a peek at the current search path by typing `PATH`. If you're working at the DOS prompt, the information preceding the blinking cursor should tell you the name of the current directory. If it doesn't, type `CD` to find out.

- **Is the file really in the directory you think it is?** If you believe the file is in the current directory, you can type `DIR /P` to browse through it one page at a time. If you don't turn up the file, maybe it's in another directory. You can search your entire disk, starting at the root directory, by typing `DIR \filename.ext /S`.

- **Is the file on which you're trying to act a read-only or hidden file?** You can't alter a read-only file, and DOS won't see a hidden file. To check the status of an individual file, type `ATTRIB filename.ext`. If the file is read-only, type `ATTRIB -R filename.ext` to make it writable. (Type `+R` to restore read-only status.) To unhide a file, use `ATTRIB -H filename.ext`. (Type `+H` to hide it again.) You can see a list of all files in the current directory, regardless of their attributes, by typing `DIR /A`.

- **Have you included an illegal character?** DOS won't let you use a double-quotation mark ("), asterisk (*), forward slash (/), colon (:), less-than symbol (<), greater-than symbol (>), question mark (?), backslash (\), or pipe symbol (|).

—M.M.

ACCESS DENIED

Until you get to know it, this message sounds like serious trouble. I still remember the first time I saw it. The day before, I'd worked on a humongous text file and had neglected to make a backup copy before quitting. When I tried to load the file into my DOS-based editor and got this response, my heart sank. I thought the file was scrambled, and I didn't have a printout.

Then I looked at my editor's command line. In my haste, I'd supplied a drive and directory from which to load the file but had omitted the filename. My editor was simply refusing to load a directory.

"Access denied" also surfaces when you try to delete or alter a file in use or when you attempt to change a read-only file. You can eliminate these problems by closing the file in the conflicting application or typing `ATTRIB -R filename` in the file so that DOS will let you change it.

PATH NOT FOUND

When DOS tells you it can't find the path—a file's drive and directory address—you've probably made a spelling mistake, forgotten

DEVICES AND DESIRES

When DOS offers you an "Abort, Retry, Fail?" or an "Abort, Retry, Ignore?" option after displaying one of the following messages, the problem probably involves a floppy drive. Consider the underlying cause and choose your response accordingly.

No matter what happens, though, don't immediately swap what you think might be a bad floppy disk for a disk you think is good. Get the error message to disappear first. If you don't heed this advice, you'll scramble the second disk if you write files to it.

How does that happen? When you put the first disk into the drive and DOS accesses it, it reads the disk's file-allocation table (FAT), a kind of road map to files. If you swap disks prematurely, and subsequently write something to the second disk, DOS updates the FAT on the second disk, using information about the FAT on the first disk. A scrambled FAT means scrambled files.

- **Data error reading drive *x***

Cause: DOS can't read certain data on the disk.

Solutions:

1. Choose *R* several times to see whether DOS will change its mind.
2. If the problem persists, choose *A*; then run ScanDisk on the troublesome drive.

- **General failure reading/writing drive *x***

Cause: DOS knows that something has gone wrong, but isn't sure what the problem is.

Solutions:

1. Put a floppy disk into the drive if it's empty.
2. Close the drive door if it's open.
3. Check out the capacity of the disk. You may be trying to read a high-density disk (1.2MB 5.25-inch or 1.44MB 3.5-inch) in a low-density drive that reads only 360K or 720K disks.
4. Press *A* and remove the disk; it's not a DOS disk.
5. Press *A* and use the FORMAT command to format the disk; it's not formatted.

- **Invalid disk change reading drive *x***

Cause: You removed a disk before DOS was through using it.

Solutions:

1. Reinsert the disk you removed prematurely; press *R*.
2. If the problem persists, remove the disk and choose *F* or *A*.

- **Not ready reading/writing drive *x***

Cause: DOS can't read from or write to the drive.

Solutions:

1. Put a floppy disk into the correct drive and retry.
2. Close the drive door.
3. Reseat the improperly positioned disk and retry.
4. If you don't want to be bothered tinkering with a floppy disk, choose *F*. DOS will come back at you with a "Current drive is no longer valid" message. Type `C:` to get back to drive C.
5. Press *A*; then use the FORMAT command to format the unformatted the disk.
6. If the message applies to a hard disk, check the drive for hardware problems.

- **Sector not found reading/writing drive *x***

Cause: Your drive can't find the right sector on your disk, usually because it's damaged.

Solutions:

1. Choose *R* several times to try to read the sector.
2. If the problem persists, choose *A*; then use ScanDisk.
3. If the troublesome disk is a floppy, it's a good idea to transfer the files to another disk and reformat the one with sector problems.

- **Seek error reading/writing drive *x***

Cause: The drive can't find the right track on the disk, perhaps because the drive's electronics are malfunctioning.

Solutions:

1. Reseat the floppy disk and retry several times.
2. If the problem recurs, repair or replace the drive.

- **Sharing violation reading/writing drive *x***
- **Lock violation reading/writing drive *x***

Cause: DOS's file-sharing program (SHARE.EXE) or your network software is preventing you from accessing a file already in use.

Solutions:

1. If you're on a network, wait a while; then choose *R*.
2. Choose *F*.

- **Write fault error writing drive x**

Cause: DOS can't write data to the drive. Sometimes this error is a symptom of a problem with the drive's alignment.

Solutions:

1. Remove and reinsert the floppy disk; then choose *R*, several times if necessary.
2. Use ScanDisk on any disk that turns up this error.
3. If you frequently get this error or other users can't read your disks, fix or replace your drive.

- **Write protect error writing drive *x***

Cause: You're trying to save information on a write-protected disk.

Solutions:

1. If it's a 5.25-inch disk, choose *A*; remove the adhesive write-protect tab and then try again.
2. If it's a 3.5-inch floppy, choose *A*, move the write-protect slider on the back of the disk down so that it covers the hole, and try again.
3. To save information to another disk instead, choose *F* (or *A* if *F* doesn't work), and insert another disk.

—M.M.

to separate directories with a backslash (\), or told DOS to look for a subdirectory that's actually in another part of your directory tree. But it could also mean that you've been playing with DELTREE, which, if you don't use it carefully, will erase the directory you name and all its subdirectories and all their files—including read-only, hidden, and system files. If that's the case, say your prayers, dig out DOS's UNDELETE command, and start rescue operations immediately.

Next time, pay closer attention when DELTREE is at the helm. It prompts you before deleting each directory; all it takes to save a directory from extinction is a press of the N key. Or use the TREE command to get a look at sections of your directory structure before using DELTREE. This command, for instance, lets you view, one screen at a time, the structure of your disk's C:\FINANCE branch:

```
TREE C:\FINANCE | MORE
```

Add /F before the pipe (|) symbol to see a directory-by-directory list of files. Type this line to get a printout:

```
TREE C:\FINANCE /A /F > PRN
```

INVALID PATH, NOT DIRECTORY, OR DIRECTORY NOT EMPTY

Back when DEL, CHDIR (CD), and RMDIR (RD) were DOS's primary tools for deleting directories, this message was my constant companion. I got it every time I failed to follow the rules:

1. Type `ATTRIB -R -H -S *.*` to make all files in the directory visible to DEL.
2. Type `DEL *.*` to delete all the files. (If you're the cautious type, use `DEL *.* /P` to have DOS prompt you before it deletes each file.)
3. Type `CD..` to move into the directory above the one you're about to delete.
4. Type `RD` *`directory`* to delete the directory.

Simple, but tedious. I often didn't bother to check for hidden files, or I forgot to change out of the directory before trying to delete it. DOS just said no.

Nowadays, if you're brave, you can avoid this error message by using DELTREE to perform a one-step wipeout. But the old-fashioned way may feel safer.

DOS Tip

Top of the Directory Charts

Finding the right filenames in a directory listing is much easier if you add a /P switch to your DIR command or to the SET DIRCMD= command in your AUTOEXEC.BAT file. DOS will pause after displaying the first screen of file and directory names; it won't list the next screen of names until you press a key.

Still, if a directory listing is long, it's hard to pick out the important filenames. To make name hunting easier, place symbols at the beginning of filenames whose directory information you refer to frequently. When sorting directories, DOS 6.2 and DOS 95 place filenames beginning with these characters at the top of their directory listings: an exclamation mark (!), a pound sign (#), a dollar sign ($), a percent sign (%), an apostrophe ('), an open parentheses [(], a close parenthesis [)], and a minus sign (-). Next come entries for the current (.) and parent (..) directories; then come files whose names begin with numbers. Filenames beginning with zero get top billing, followed by those beginning with 1, 2, 3, and so on.

So if you want to ensure that a file named BIGDEAL.TXT always comes out on top, you can rename it !BIGDEAL.TXT. 0BIGDEAL.TXT would appear before 1BIGDEAL.TXT, but below the listings for the current and parent directories.

PROGRAM TOO BIG TO FIT IN MEMORY

The first thing to ask yourself when DOS lowers the out-of-memory boom is whether you are where you think you are. Maybe you're in a DOS application and used its "shell to DOS" option to open a special DOS session within the application and do file management. And maybe when you finished, you forgot you weren't in DOS, so you tried to load another program—perhaps even the one in which you're really still working. Type `EXIT` to end the madness, and you'll be back in the application where you started.

If you know you're at the primary DOS prompt, and you have a 386 or later computer, run DOS's automatic memory optimizer, MEMMAKER. If you're still short on memory after that, consider reducing the value for the BUFFERS setting in your CONFIG.SYS file and disabling lines that load memory-resident programs, such as PRINT.COM, GRAPHICS.COM, or a popup organizer. A simple REM in front of each extraneous line puts it out of commission temporarily.

ABORT, RETRY, FAIL? ABORT, RETRY, IGNORE?

These aren't so much error messages as followups that DOS issues after it encounters problems reading from or writing to a device such as a floppy-disk drive. Treat these queries seriously; you can destroy data by making the wrong choice.

The sidebar "Devices and Desires" (page 49) offers advice on how to react when you encounter the most common device errors. If your magazine's not handy when one of these problems crops up, you can plot a safe course by remembering how DOS reacts to each of four choices:

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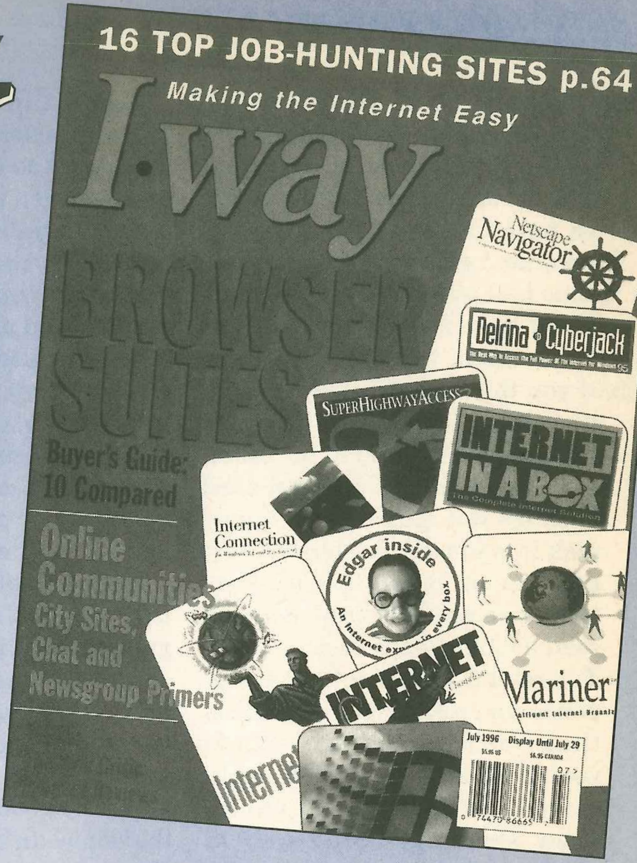

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AISUB

1. Choosing *A* tells DOS to cancel the operation—to stop trying to read a floppy disk, for instance. You return to the DOS prompt. In many cases, if retrying the command gets you nowhere, *A* is your best option. Unfortunately, if you make this choice within an application, you may lose data.
2. If you think you know how to fix a problem, do so; then select *R*. It's a natural choice if, for example, you realize DOS complained because you didn't put a floppy disk into the drive. This is also a good option if you think persistence will get DOS to give in and read a balky floppy disk.
3. To pretend the error hasn't happened and return to the program that was running, choose *I*. If you're working an a DOS application, this is a better choice than aborting, because DOS sends an error message to the program. Unfortunately, some programs don't pick up on these error messages, and you end up aborting anyway.
4. Pressing *F* terminates the operation and returns you to the DOS prompt or the application in which you were working. Because some programs won't notice that the operation has failed, this option often has no effect, and you have to choose *A*.

CANNOT LOAD COMMAND, SYSTEM HALTING

BAD OR MISSING COMMAND INTERPRETER

ERROR LOADING OPERATING SYSTEM

CANNOT START COMMAND, EXITING

Things look grim, but they're probably not as bad as you fear. These messages tell you that DOS looked in the expected spot for its command processor, COMMAND.COM, and couldn't find it, or it was damaged.

Maybe DOS can't find it because the area where DOS keeps track of memory was destroyed, maybe the program isn't where the environment variable COMSPEC says it should be, maybe the SHELL command in CONFIG.SYS is wrong, or perhaps you accidentally deleted or moved COMMAND.COM from your root directory.

You may also get these complaints if your FILES setting in CONFIG.SYS is too low or because you don't have enough free space in memory for another copy of COMMAND.COM.

If the trouble developed at start-up, try booting with your emergency boot disk, or get one from someone who's using the same DOS version you are and is willing to create a bootable floppy disk for you using the FORMAT /S command. Copy the good COMMAND.COM from the floppy disk to the root directory of your boot drive, usually drive C. Then reboot.

Your system should start fine now, unless you've got a hard-disk-drive problem, in which case it's time to back up your most important files, if you can, and get technical assistance.

If the problem developed as you were exiting a DOS application and returning to DOS, press Reset or reboot. DOS probably just got confused, and everything should be fine if you start over.

If DOS can't start another copy of COMMAND.COM, check your FILES command, and up the setting to 15 or 20. If you still have trouble after that, memory is in short supply. Start DOS up again and off-load any nonessential memory-resident programs.

NON-SYSTEM DISK OR DISK ERROR, REPLACE AND STRIKE ANY KEY WHEN READY

I've seen this one a gazillion times, and it always means the same thing: I forgot to remove a data disk from drive A before resetting or rebooting.

If there's a disk in your floppy boot drive, most computers try to boot it before trying to boot from your hard disk. If you want a disk to be bootable, format it with the FORMAT /S command.

A word to the wise: Leaving a disk in your boot floppy drive is one bad computing habit you should try hard to break. Many a computer virus works its mischief by hiding in the boot sector of a data disk; when your system attempts to boot from the infected floppy disk, the virus worms its way onto your hard disk.

Luckily for some of us, certain computers don't automatically try to boot from drive A if it contains a floppy disk. If you have one of those machines, you don't have to worry when you get this error message.

DIVIDE OVERFLOW

INTERNAL STACK OVERFLOW, SYSTEM HALTING

Multiply by zero, and you get nothing; divide by zero, and you get confusion—especially if it's your application that's doing the dividing. You, on the other hand, get the dubious pleasure of rebooting. If "Divide overflow" happens whenever you use a particular program, try to get your money back; the software has a serious flaw.

On the other hand, although a stack-overflow message carries the same penalty—a mandatory reboot—you can do something to solve the problem. This complaint indicates that the stack—an internal storage area for handling hardware interruptions—has run out of space.

To fix it, increase the value in the STACKS= command in your CONFIG.SYS file. By default, DOS sets the value to STACKS=9,128—nine stacks of 128 bytes each. ■

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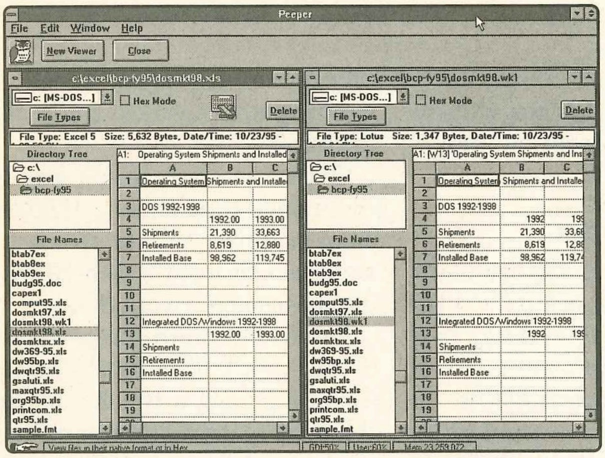


File Type: Excel 5 Size: 5,632 Bytes, Date/Time: 10/23/95 -

c:\
excel
bcp-fy95

btab7ex
btab8ex
btab9ex
budg95.doc
capex1
comput95.xls
dosmkt97.xls
dosmkt98.wk1
dosmkt98.xls
dosmktxx.xls
dw369-95.xls
dw95bp.xls
dwqtr95.xls
gsaluti.xls
maxqtr95.xls
org95bp.xls
printcom.xls
qtr95.xls
sample.fmt

A1: Operating System Shipments and Installed

	A	B	C
1	Operating System	Shipments and Installe	
2			
3	DOS 1992-1998		
4		1992.00	1993.00
5	Shipments	21,390	33,663
6	Retirements	8,619	12,880
7	Installed Base	98,962	119,745
8			
9			
10			
11			
12	Integrated DOS/Windows 1992-1998		
13		1992.00	1993.00
14	Shipments		
15	Retirements		
16	Installed Base		
17			
18			
19			

File Type: Lotus Size: 1,347 Bytes, Date/Time: 10/23/95 -

c:\
excel
bcp-fy95

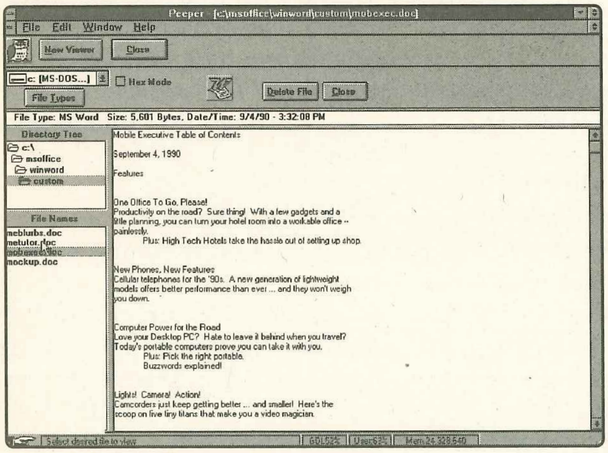
btab7ex
btab8ex
btab9ex
budg95.doc
capex1
comput95.xls
dosmkt97.xls
dosmkt98.wk1
dosmkt98.xls
dosmktxx.xls
dw369-95.xls
dw95bp.xls
dwqtr95.xls
gsaluti.xls
maxqtr95.xls
org95bp.xls
printcom.xls
qtr95.xls
sample.fmt

A1: [W13] 'Operating System Shipments and Ins

	A	B	C
1	Operating Systen	Shipments and Installe	
2			
3	DOS 1992-1998		
4		1992	19
5	Shipments	21,390	33,66
6	Retirements	8,619	12,88
7	Installed Base	98,962	119,74
8			
9			
10			
11			
12	Integrated DOS/Windows 1992-1998		
13		1992	19
14	Shipments		
15	Retirements		
16	Installed Base		
17			
18			
19			

View files in their native format or in Hex | GDI:50% | User:60% | Mem 23,259,072

Comparing Excel and 1-2-3 Spreadsheets



File Type: MS Word Size: 5,601 Bytes, Date/Time: 9/4/90 - 3:32:08 PM

c:\
msoffice
winword
custom

meblurbs.doc
metutor.doc
mobexec.doc
mockup.doc

Mobile Executive Table of Contents

September 4, 1990

Features

One Office To Go, Please!
Productivity on the road? Sure thing! With a few gadgets and a little planning, you can turn your hotel room into a workable office -- painlessly.
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Buzzwords explained!

Lights! Camera! Action!
Camcorders just keep getting better ... and smaller! Here's the scoop on five tiny titans that make you a video magician.

Select desired file to view | GDI:52% | User:63% | Mem 24,328,640

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BATCH-FILE MEDIC

Lightbar Hopping

Tired of the same old batch-file menus? Here's how you can let users make their selections with a lightbar.

by Hardin Brothers

It doesn't take much experience with batch files to write a simple menu program. DOS's CHOICE command, first available in DOS 6.x, makes simple menus easy.

Here's how it works, basically. A batch file displays menu options and employs CHOICE with appropriate switches to let the user pick among them. Then, with just a couple of IF ERRORLEVEL lines, your batch program can run an application or another batch file, or take other actions, based on the user's selection.

That's all simple—and also dull. Few DOS applications use an A-B-C-D menu these days. At the least, they use a moving-lightbar menu: The user moves a lightbar to highlight a choice and presses the Enter key to select the choice under the lightbar.

Can you use a lightbar menu with batch files? Of course, if you're willing to do a little work. In this installment of "Batch-File Medic," I'll show you how to create and fine-tune a batch-file lightbar menu. If you don't feel like working along while we construct it, you can use the accompanying listing as part of your own batch-file toolbox without even having to understand how it works.

Designing the Program

Coming up with the requirements for the program was easy: I wanted a batch file called LMENU.BAT that would accept up to nine pairs of menu entries and actions on its command line. In all likelihood, another batch program will almost always call LMENU.BAT, with a syntax like this:

```
LMENU WordProcessing WP.EXE Spread-
  sheet SS.EXE Games GAMES.BAT
```

Called up with this command line, LMENU.BAT will display a title and three menu choices: *WordProcessing*, *Spreadsheet*, and *Games*. It will place a lightbar on the first option; the user can move the lightbar with the cursor keys and make a selection by pressing Enter.

If the user selects *WordProcessing*, LMENU.BAT runs WP.EXE; if the user selects *Spreadsheet*, LMENU.BAT runs SS.EXE; and if the user selects *Games*, LMENU.BAT runs GAMES.BAT. If the user presses Esc, LMENU.BAT ends gracefully without running any application or batch file at all.

Of course, there aren't any DOS commands that make LMENU.BAT a snap to write. In fact, it must use several unusual batch-file techniques to get its work done.

Before I explain the program in detail, type in the batch file (page 57) and give it a try. As shown in the accompanying program listing, the second-from-last line merely displays what action the batch file would take instead of running an application or a new batch file; at the end of this article, I'll explain how to change that line to take an action.

Basic Techniques

The first programming problem I had to solve in LMENU.BAT was how to position the cursor and how to display individual menu entries with text and background screen colors reversed, to give the appearance of a lightbar.

To do that, LMENU.BAT makes extensive use of ANSI.SYS codes. The program won't work if you don't have DOS's ANSI.SYS program loaded in your CONFIG.SYS file with one of these two lines:

```
DEVICE=ANSI.SYS
```

or:

```
DEVICEHIGH=ANSI.SYS
```

Several ANSI.SYS codes are critical for LMENU.BAT's success. These codes and their definitions are shown in the accompanying sidebar, "ANSI.SYS Sequences in LMENU.BAT" (page 56).

LMENU.BAT uses the ECHO command to send ANSI.SYS codes to the computer. I prefer ECHO over the PROMPT command for this purpose, partly because that way the batch program doesn't have to save and restore the current prompt, which can be an error-prone process in some cases.

But the downside to using ECHO is that it always adds a carriage return and linefeed to the end of the line; if an ANSI.SYS code sets the cursor position and then ECHO adds a carriage return and linefeed, the cursor is no longer where the batch file wants it to be.

An easy way around this problem is to use ANSI.SYS commands to save the cursor position before ECHO has a chance to move it, and then later restore the position to the desired location. The ←[s and ←[u commands throughout LMENU.BAT are necessary to overcome ECHO's insistence that each line should end with a carriage return.

LMENU.BAT uses the CHOICE command to collect and interpret the user's keystrokes. In this program, the only keys CHOICE accepts are the up and down arrows, Enter, and Esc. But CHOICE can't read any of those keys gracefully, because it's intended to work only with standard number and letter keys. So my second programming problem was to find a way to get the CHOICE command to understand those keys. To do that, I used three different techniques.

Tricks of the Trade

The Esc key was the easiest to deal with. To get CHOICE to see Esc as a valid keystroke, all you have to do is enter the escape character (ASCII key code 27) as one of the options in CHOICE's command line. If you're using DOS's text editor, Edit (EDIT.COM), you can enter the escape character by pressing the Ctrl+P key combination followed by the Esc key.

The up and down cursor keys are only slightly more difficult. The first step is to look up the codes for those keys. (In DOS 6.x, type `HELP ANSI.SYS` for a list of key codes.) The key code for the up arrow is either zero plus 72 (on the numeric keypad) or 244 plus 72 (on the cursor keypad). The code for the down arrow is 0;80 or 244;80.

If you look further down the list of codes, you'll find that 72 is also the code for an uppercase *H* and that 80 is the code for an uppercase *P*. So if you tell CHOICE to look for *H* and *P*, it will react to the up arrow and down arrow.

Unfortunately, it beeps annoyingly when it detects the first code (zero or 244), but that's easy to take care of: Just send CHOICE's output to NUL. DOS will send the beeps (along with CHOICE's prompt) to the bit bucket, and the user will never know about them.

The most difficult key to get CHOICE to see is Enter. Instead of trying to find a work-around for it, I decided to redefine Enter as a different key: an uppercase *Q*. (My choice of *Q* is arbitrary; you can use any standard key you prefer.)

To redefine a key this way, the handiest tool, again, is DOS's ANSI.SYS module. Line 61 redefines the Enter key as *Q*, and line 64 redefines it as the standard Enter.

The only danger here is that if the user exits the program between these two lines, the Enter key will remain a *Q* and the user will be faced with a keyboard that can't generate a standard Enter at all.

Adding and Subtracting

With screen and keyboard control taken care of, LMENU.BAT faces only one additional problem. The program has to be able to count the number of menu and action pairs on the command line and then count screen lines.

When the user presses an up arrow, the program needs to be able to subtract 1 from the current screen line and move up. When the user presses the down arrow, the program needs to be able to add 1 to the current screen line and move down. And, of course, I also had to make sure that the user couldn't move the cursor above the first menu item or below the last menu item on screen.

Counting the number of items and keeping track of the current screen line demands some arithmetic capabilities that are noticeably lacking in DOS's batch language. There are ways around this shortcoming, of course. The problem was to pick the best one for this program.

I could have used FOR...IN...DO's forward slash, which I've written about several times in earlier articles. But if I employed that undocumented feature of DOS's batch language, we wouldn't be able to use this menu program with the DOS version included with Windows 95.

I could also have used a large number of IF statements, which might have looked something like this line:

```
IF %ScreenLine% == 4 IF NOT
  %ItemCount% == 4 SET
  ScreenLine=5
```

But dozens of IF lines aren't very elegant or efficient. So I turned to the SHIFT command for help. Let's assume that you have a list of numbers that looks like this:

```
1 2 3 4 5 6 7 8 9
```

Let's say also that you want to add 1 to an environment variable called CURNUM (short for *current number*) and that you know it's set equal to a single digit from 1 to 8. Finally, let's assume you have a batch file called TEST.BAT and that you call it this way:

```
TEST 1 2 3 4 5 6 7 8 9
```

TEST.BAT will add 1 to CURNUM if it contains these instructions:

```
:ADD
SHIFT
IF NOT %CURNUM%==%1 GOTO ADD
SET CURNUM=%2
```

That's the crux of the entire solution. Essentially, TEST.BAT looks through its list of command-line parameters until it finds one that equals the value of CURNUM. When it finds that value, it sets CURNUM to the next value in line. For example, if CURNUM equals 4, TEST.BAT sets it to 5.

What if you don't want to set CURNUM higher than 4 because you have only four menu items? That's a simple problem to solve—just call TEST.BAT this way:

```
TEST 1 2 3 4 4
```

Here, if CURNUM is already set to 4 (the first 4 in that line), TEST.BAT simply sets it to the next 4. In other words, CURNUM won't appear to change at all.

Subtraction is just as easy with this technique. If you want to reduce CURNUM by 1 while making sure it never goes below 1, call TEST.BAT this way:

```
TEST 9 8 7 6 5 4 3 2 1 1
```

Of course, it's best to do as much as possible within a single batch file, so I created a routine called ADD (lines 16 to 24) and had LMENU.BAT call itself this way:

```
CALL LMENU ADD 1 2 3 4 5 6 7 8 9 9
```

to add a value to CURNUM. To keep the program from breaking if you change its name from LMENU.BAT to something else, the program stores its own name in the environment variable ME and makes the call this way (line 39):

```
CALL %ME% ADD 1 2 3 4 5 6 7 8 9 9
```

Once I perfected this technique, I'd solved all the difficult problems and could start putting LMENU.BAT together.

Understanding the Program

After some obligatory housekeeping and error checking, LMENU.BAT gets down to work in line 37, where it begins a loop to read and store each pair of command-line parameters. It adds 1 to CURNUM so that it knows which pair (pair 1, pair 2, and so on) it's reading and adds that number and a space to an environment variable called ADDLINE, which we'll use later in the program.

Then the program reads and stores a menu item (in a variable called ITEM*n*) and action (in ACT*n*), prints the menu item on screen, and moves on to the next pair of menu items and actions until it's ready to activate the menu.

After it has read all of the item and action pairs, LMENU.BAT does a little housecleaning. First, it adds the final item number to ADDLINE, so it appears a second time (line 48). If there are four menu items, ADDLINE ends up looking like this:

```
1 2 3 4 4
```

Then the program sets CURNUM to 1, because we'll want to put the lightbar on the first menu item.

ANSI.SYS SEQUENCES IN LMENU.BAT

To type the escape character (the left-facing arrow, ASCII 27) in DOS's text processor Edit (EDIT.COM), press Ctrl+P followed by Esc (with NumLock on).

- **←[0m** (lines 34, 65, 92, 98) turns all text attributes off; returns to "standard" white letters on a black background.
- **←[7m** (line 58) turns on reverse-video mode (in this case, black letters on a white background).
- **←[2J** (lines 34, 92, 98) clears the screen and returns the cursor to the top-left corner of the display.
- **←[3;20H** (lines 34, 57) moves the cursor to line 3, column 20. (Both lines and columns are zero-based, so that's the 21st column of the fourth line on screen.)
- **←[s** (lines 34, 43, 57) stores the current cursor position (both line and column) for later recall.
- **←[u** (lines 43, 58, 61, 65) returns the cursor to the line and column saved with the last ←[s command.
- **←[*n*B** (lines 43, 57) moves the cursor down *n* rows.
- **←[13;"Q"p** (line 61) redefines the Enter key (code 13) as an uppercase *Q*.
- **←[13;13p** (line 64) redefines the Enter key (code 13) to operate normally.

—H.B.

LMENU.BAT demonstrates the use of ANSI.SYS to create lightbar menus. Line numbers and the first colon in each line are for reference only; don't type them in. To type in the escape character (the left-facing arrow) in DOS's text processor Edit, press Ctrl+P, Esc (with Num Lock on).

```
@ECHO OFF
::   LMENU.BAT: Lightbar menu program

::  Syntax:
::    LMENU.BAT Item1 Action1 Item2 Action2 ...
::    Can specify up to 9 Item / Action pairs

::  User moves with up arrow, down arrow
::   selects with Enter
::    aborts with Esc

IF %1#==# GOTO HELP
IF %2#==# GOTO HELP
IF NOT %1#==ADD# GOTO START

:ADD
:: Adds or subtracts from %CURNUM% environment
:: variable. Uses command-line parameters to
:: read the current value and the value that
:: should follow it.
  SHIFT
  IF NOT %CURNUM%==%1 GOTO ADD
  SET CURNUM=%2
  GOTO END


:START
:: Normal entry point to program
SET ME=%0
SET CURNUM=0
SET ADDLINE=

::  Place the cursor and print the title.
ECHO ←[0m←[2J←[3;20H←[sLightbar Menu

::  Get all items into environment variables
:LOOP
::  Count next item
  CALL %ME% ADD 0 1 2 3 4 5 6 7 8 9 9
  SET ADDLINE=%ADDLINE% %CURNUM%
  SET ITEM%CURNUM%=%1
  SET ACT%CURNUM%=%2
  ECHO ←[u←[2B←[s%1
  SHIFT
  SHIFT
IF NOT %1#==# GOTO LOOP

SET ADDLINE=%ADDLINE% %CURNUM%
SET CURNUM=1

:DO_MENU
:: Retrieve current item:
ECHO @SET ITEM=%%ITEM%CURNUM%%% > C:\TEMP\TEMP.BAT
CALL C:\TEMP\TEMP.BAT

:: Move cursor to line
ECHO ←[3;20H←[%CURNUM%B←[%CURNUM%B←[s
ECHO ←[u←[7m%ITEM%

:: Redefine Enter key and then use CHOICE:
ECHO ←[13;"Q"p←[u
CHOICE /S /C:HPQ← > NUL
:: Turn off Enter redefinition and unhighlight the line
ECHO ←[13;13p
ECHO ←[u←[0m%ITEM%
::
IF ERRORLEVEL 4 GOTO ESCAPE
IF ERRORLEVEL 3 GOTO ENTER
IF NOT ERRORLEVEL 2 CALL %ME% ADD 9 8 7 6 5 4 3 2 1 1
IF ERRORLEVEL 2 CALL %ME% ADD %ADDLINE%
GOTO DO_MENU

:HELP
CLS
ECHO Batch-File Lightbar Menu Program
ECHO.
ECHO Syntax:
ECHO    %0 Item1 Action1 Item2 Action2 ...
ECHO    up to 9 Item / Action pairs allowed
ECHO.
ECHO Item1 to Item9 will appear on the menu
ECHO The appropriate action will occur when you
ECHO   select an item.
ECHO
ECHO Use the up and down arrows to move the lightbar
ECHO Use the Enter key to select an item
ECHO Use the Esc key to exit without making a selection
ECHO.
GOTO END

:ESCAPE
ECHO ←[0m←[2J
ECHO You pressed Esc to Exit
SET ACTLINE=
GOTO CLEANUP

:ENTER
ECHO ←[0m←[2J
ECHO @SET ACTLINE=%%ACT%CURNUM%%% > C:\TEMP\TEMP.BAT
CALL C:\TEMP\TEMP.BAT

:CLEANUP

FOR %%N IN (%ADDLINE%) DO SET ITEM%%N=
FOR %%N IN (%ADDLINE%) DO SET ACT%%N=
SET ME=
SET CURNUM=
SET ADDLINE=
SET ITEM=

IF NOT %ACTLINE%#==# ECHO Ready to perform: %ACTLINE%

:END
```

End

In line 51, at the label :DO_MENU, the program starts the lightbar menu. Its first task here is to read a menu entry from the environment so that it can print that entry in reverse video. That takes a little trickery; the first menu entry, for example, is stored as ITEM1. To print it, you could try something like this:

```
ECHO %ITEM%CURNUM%%
```

But that won't work, because DOS evaluates the expression from left to right. First, it finds the value in ITEM and then finds the value in CURNUM. You can't force it to create a variable name called ITEM1 and look for the value of that variable. At least, you can't force it to do so directly. So LMENU.BAT has to create a new, short batch file to do that work. Line 54 shows how. Once the program sends this line to TEMP.BAT, it looks like this (assuming that CURNUM=1):

```
@SET ITEM=%ITEM1%
```

Then we can call TEMP.BAT and tell it to look up the value we need and save it in the environment.

Next, lines 57 and 58 position the cursor (based on the value of CURNUM) at the correct line and column and then print the menu choice in reverse video.

Line 61 redefines the Enter key, and line 62 uses CHOICE to get the user's keystroke. Line 64 undoes the redefinition of Enter, and line 65 turns off the lightbar.

The Wrapup

All that's left now is to react to the user's keystroke. Lines 67 and 68 branch if the user pressed the Esc or Enter key.

Next, line 69 subtracts 1 from CURNUM if the user pressed the up arrow. Line 70 adds 1 if the user pressed the down arrow.

If we could be sure that there are exactly nine menu items, line 70 could look like this:

```
CALL %ME% ADD 1 2 3 4 5 6 7 8 9 9
```

But there may be fewer than nine entries. Therefore, line 70 sends the contents of ADDLINE to ADD to use in the addition.

ADDLINE holds one value for each existing menu item and includes the last value again to keep the cursor from dropping below the last menu item.

For example, if there are only two menu items from which to choose, ADDLINE looks like this:

```
1 2 2
```

That's exactly the line we need for two menu items, and it explains why the program had to create ADDLINE while it was reading and storing menu-item and action pairs.

Now the ESCAPE routine (line 91) cleans up the screen, erases the environment variable ACTLINE, and then jumps to CLEANUP to tidy up the environment before ending the program. The DONE routine is similar, but it reads the action associated with the menu item the user selected, and puts that action into the variable ACTLINE.

As written, LMENU.BAT just displays the action the user selected. Once you're sure that LMENU.BAT is working for you, you can change line 111 to this:

```
%ACTLINE%
```

to perform the required action.

Getting Results

If you call LMENU.BAT from another batch file, you may want to know what activity it actually performed. For example, it may be important to your original batch file to know whether the user chose to work with a spreadsheet, played a game, or pressed Esc to simply end.

If the original program started LMENU.BAT with a CALL statement, it can read the results by checking the environment variable ACTLINE. If that variable doesn't exist, the user pressed Esc to end the program. If ACTLINE does exist, the user made a selection, and that variable will contain the name of the program or batch file LMENU.BAT ran.

You may want to change LMENU.BAT in other ways, as well. As written, for example, it displays a boring black-and-white screen. With a few changes to the ANSI.SYS commands in lines 34, 58, and 65, you can make the program more colorful by setting other screen attributes. The ANSI.SYS topic in DOS's Help module explains how to turn foreground and background colors on and off.

You may also want to make the menu wrap around from top to bottom. With some small changes, the cursor could move from the bottom row to the top if the user presses the down arrow again, or from the top to the bottom if the user presses the up arrow.

The easiest way to do that is to modify ADDLINE slightly so that the last entry is a 1 instead of a repeat of the last item number. You'd also have to create a SUBLINE for moving up; for a three-item menu, it would look like this:

```
3 2 1 3
```

You could do so by adding a couple of lines to the part of the program that reads each item and action pair. I'll leave the details up to you.

Jazz Up Your Screen

My main purpose in writing the LMENU.BAT program was to prove that DOS batch-based menus don't have to be dull. For example, I used LMENU.BAT in a series of batch programs I wrote for a client who was irritated by those simplistic, traditional A-B-C menus.

Even though DOS's batch language is somewhat outdated, LMENU.BAT just goes to prove that it's flexible enough to create a modern interface you can be proud of. ■

PC TOOLBOX

For the Record

Need a quick printout of your screen? PRINTSCR will oblige, typing out all 50 lines displayed on your VGA monitor and forcing your printer to spit out the page automatically.

by Robert L. Hummel

Recently, I was tinkering with some of the directory settings for my word processor—the ones for its default directories and so on. But after changing a few parameters with less-than-satisfactory results, I decided to put things back the way they were. The trouble was, I couldn't remember my original settings. I tried using the program's on-line help, but it couldn't find the file. Eventually, I wound up reinstalling the entire package.

Life is fleeting, and, as I learned, so is the important information stored in your computer. In today's world of built-in-menu this and automatic-configuration that, it seems that nothing is ever written down. In many cases, you're only one hard-disk crash or accidental file deletion away from disaster.

Since my brush with calamity, I've taken pains to document the settings for every accessory and application I own. How? Simply by using my PC's built-in Print Screen function to create paper copies of all my configuration screens.

Print Screen Basics

The Print Screen function has been standard equipment in every IBM-compatible PC since the first single-floppy model rolled off the production line. Its primary purpose is to dump the text on your screen to the printer attached to the first printer port, LPT1.

Printing a screenful of information is easy. Search the top row of your keyboard for a key labeled *Print Screen*, *PrtSc*, or something similar. (On many 101-key keyboards, it may have a second label, *SysReq*.) Make sure that your printer is on line and connected to LPT1; then press Shift+Print Screen. (If your PC appears to hang when you do that, be patient. In 30 seconds or so, the BIOS will figure out that the printer isn't responding, cancel the operation, and return control to you.)

If your printer has a status indicator, it should show that it has received data. To force the page out, use the printer's front-panel controls to eject it manually. The printout should contain a reasonable likeness of the data on your screen.

In the early days of PC computing, when you pressed Print Screen, you got 25 lines of text on your printout—the standard number of lines displayed on screen. When IBM introduced its EGA video standard, users could then change the number of text lines displayed. To preserve backward compatibility, an EGA display still defaulted to 25 lines of text; with an easy-to-write utility, though, you could switch the display to hold 43 lines of text.

IBM's EGA card contained its own BIOS, with routines to control the card's new capabilities. One of those routines was the Select Alternate Print Screen function (*Int 10h, AH=12h, BL=20h*).

Programs incorporating this function let the EGA card substitute a new, improved Print Screen function for the PC's outdated one. When the newer VGA standard supplanted EGA, support for this function continued.

Room for Improvement

To maintain compatibility, your video card's enhanced Print Screen routine doesn't take over automatically. To activate it, you must call it, so in most PCs the updated Print Screen routine lies dormant. That's too bad, because although your PC's built-in screen function is useful, it has obvious flaws.

First, unless your PC's BIOS is relatively modern, it may print only the first 25 lines of your screen. So if you're using your VGA card's 50-line mode, you'll discover that as much as half of your data may be invisible to these older Print Screen functions.

Another problem with default Print Screen routines is that they don't eject the page automatically. When line-oriented dot-matrix printers were all the rage, that wasn't a big deal. The screen would print line by line, and you could see—and hear—the results immediately. But with laser and other page-oriented printers, you don't see anything until printing is complete and the printer ejects the page. I have trouble with that; all too often, forgetting that a page of data is stuffed inside the printer, I turn it off, sending my unprinted page to silicon limbo.

Fortunately, a little programming magic can overcome these limitations. Your PC's BIOS may not understand screens longer than 25 lines, but the BIOS in your hot-shot video card certainly does. All you have to do is send it the right messages. And retrofitting Print Screen to eject a page after each screen dump is as easy as wrapping it in a smarter routine.

But you don't have to figure out on your own how to do either one of these tasks; I've handled all the details for you by writing a program called PRINTSCR.

PRINTSCR's in Control

Before you can use PRINTSCR, you'll have to create it. To convert the Debug script PRINTSCR.SCR (opposite) to its executable equivalent, follow the simple instructions in the "Debug Scripts" section of "How to Use This Magazine" (page 63). Then load your new copy of PRINTSCR at the DOS command line:

```
PRINTSCR [NOEJECT]
```

Or, to make PRINTSCR active during your entire DOS session, add the command to your AUTOEXEC.BAT file. PRINTSCR will load itself into memory and immediately begin monitoring the Print Screen function. Don't worry about handicapping your system's performance; PRINTSCR requires only about 320 bytes of memory when loaded.

Ejecting a page automatically is handy, but you may not always want to do that. To change PRINTSCR's ejection status, run the program again, this time with the optional NOEJECT argument. You can change PRINTSCR's ejection status as often as you like. No matter how many times you run the program, it doesn't consume any additional memory.

Each time you press the Print Screen key, the portion of the PC's BIOS that processes keystrokes detects your action and generates an Interrupt 5. By default, this

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PRINTSCR.SCR creates the utility program PRINTSCR.COM, which makes it easier to create printouts of the contents of your screen.

```
N PRINTSCR.COM
A 100
JMP     0185
DB 01 00
PUSH    AX
MOV     AL,01
CS:
XCHG    AL,[0104]
OR      AL,AL
JZ      0114
POP     AX
CLI
IRET
STI
PUSHF
CALL    0000:0000
CS:
CMP     Byte [0103],00
JZ      0113
PUSH    DX
MOV     AX,000C
SUB     DX,DX
INT     17
POP     DX
CLI
CS:
MOV     Byte [0104],00
JMP     0113
DB "PrintScr 1.0"
DB 20 "Copyright (c) 1996"
DB 20 "Robert L. Hummel"
DB D A
DB "Syntax: PrintScr"
DB 20 "[Noeject]"
DB D A 24
MOV     AH,09
MOV     DX,0135
MOV     SI,DX
MOV     DI,DX
INT     21
MOV     AX,3505
INT     21
MOV     CX,000C
REPZ
CMPSB
JZ      019E
PUSH    DS
POP     ES
MOV     SI,0081
MOV     AH,01
LODSB
CMP     AL,20
JZ      01A3
CMP     AL,0D
JZ      01B4
OR      AL,20
CMP     AL,6E
JNZ     01B4
DEC     AH
ES:
MOV     [0103],AH
MOV     CX,CS
MOV     BX,ES
CMP     BX,CX
JZ      01C5
MOV     AH,4C
INT     21
MOV     AH,12
MOV     BL,20
INT     10
MOV     AX,3505
INT     21
MOV     [0117],BX
MOV     [0119],ES
MOV     AX,2505
MOV     DX,0105
INT     21
MOV     AX,[002C]
MOV     ES,AX
MOV     AH,49
INT     21
MOV     DX,0141
INT     27

RCX
EE
W
Q
```

End

interrupt calls up the Print Screen routine contained in your PC system's BIOS.

When PRINTSCR is at work, however, it gets in the middle of things by calling the Select Alternate Print Screen function, which tells your video card to change the address to which Interrupt 5 points from the default Print Screen routine to its own. From here on in, all Print Screen requests are routed to the video card's routine.

To determine when to eject a page, if that function is enabled, PRINTSCR intercepts Interrupt 5, placing itself between the keyboard-detection routine and the video card's BIOS. Each time the PC's BIOS generates an Interrupt 5, PRINTSCR gets control.

PRINTSCR first calls the video card's Print Screen routine to dump the display's contents to the printer. When the program regains control, it checks to see whether you've disabled automatic page ejection. If not, it sends a form-feed character to the printer to flush out the page.

It was a wise person who first said, "Paper never forgets!" With a smarter Print Screen function, you can easily build a record of your configuration screens and default settings and print copies of DOS's on-line help screens. Once you start printing with PRINTSCR, you'll never go back. ■

DOS Tip

Improving on MKDIR

If you're reorganizing your hard disk, making a directory and then switching into it gets old fast. Usually you create the directory, forget that you need to switch to it, and end up copying files to the wrong directory. Ugh!

ND.BAT (ND stands for *new directory*) solves the problem neatly. The listing contains just three lines:

```
@ECHO OFF
MD %1
CD %1
```

Use the program as you would the MKDIR (MD) command, typing its name followed by the name of the directory you want to create. This command, for instance, creates and then switches you to \NEW:

```
ND \NEW
```

—David Oatley

How to Use

REPLACEABLE TEXT

Articles in *DOS World* will often give you a command that includes text you must replace with your own information. This replaceable text is in italics. For example, in the following command, you'd replace *filename* with the name of your own file:

```
COPY A:filename B:filename
```

THE CONFIG.SYS FILE

In your root directory is a file called CONFIG.SYS. Like AUTOEXEC.BAT, this file is in ASCII, and you can view your CONFIG.SYS file with the TYPE command. A typical CONFIG.SYS might look like this:

```
DEVICE=C:\DOS\HIMEM.SYS
DEVICE=C:\DOS\EMM386.EXE NOEMS
DOS=HIGH,UMB
FILES=50
BUFFERS=10
SHELL=C:\DOS\COMMAND.COM
  C:\DOS\ /E:1024 /P
DEVICE=C:\DOS\ANSI.SYS
DEVICE=C:\DOS\SETVER.EXE
```

The rules for handling CONFIG.SYS are the same as they are for AUTOEXEC.BAT: Always back up the original file before you modify it and always have an emergency boot disk available. As with AUTOEXEC.BAT, changes you make to CONFIG.SYS won't take effect until you restart your computer.

ANSI.SYS AND THE ESCAPE CHARACTER

When an article says you must have ANSI.SYS installed, it means that the MS-DOS file ANSI.SYS should be in your \DOS directory, and the following line should be in your CONFIG.SYS file:

```
DEVICE=C:\DOS\ANSI.SYS
```

Some articles that discuss ANSI.SYS will also ask you to create a batch file that uses the escape character. Unfortunately, there's no uniform method of doing so. If you use EDIT, the text editor that comes with MS-DOS, you can make an escape character by pressing Ctrl+P and then the Esc key. The escape character appears on screen as a small left-pointing arrow. If you're using another text editor or word processor, check its instructions for information on how to enter the escape character.

THE AUTOEXEC. BAT FILE

Most people have a batch file called AUTOEXEC.BAT on their hard disks. If you want to look at it, first go to your root directory by typing `CD\`. Type `DIR` to make sure AUTOEXEC.BAT is there. Then type the following command:

```
TYPE AUTOEXEC.BAT | MORE
```

A simple AUTOEXEC.BAT file might look like this:

```
@ECHO OFF
PROMPT $P$G
PATH=C:\DOS;C:\WINDOWS;C:\WP51;C:\BAT
C:\DOS\SMARTDRV.EXE
C:\MOUSE\MOUSE.COM
C:\DOS\DOSKEY.COM
SET TEMP=C:\TEMP
```

When a *DOS World* article instructs you to modify your AUTOEXEC.BAT file, always make a backup copy of the original AUTOEXEC.BAT first. The most common names for your backup copy are AUTOEXEC.BAK or AUTOEXEC.BK. The latter lets you save different versions of your backups—for example, AUTOEXEC.BK1 and AUTOEXEC.BK2. You create a backup copy with the following command:

```
COPY AUTOEXEC.BAT AUTOEXEC.BAK
```

Also, you should have an emergency boot disk available whenever you modify AUTOEXEC.BAT. (See the accompanying section on the facing page, top.) It will let you access your hard drive in case you make an error that locks up your computer. Changes you make to AUTOEXEC.BAT won't take effect until you restart your computer.

BATCH FILES

A batch file is a text file that tells MS-DOS to do a series of tasks. The filename of a batch file always ends with the extension .BAT.

A batch file must be in plain-text format. For example, a batch file might consist of the following lines:

```
CD\
DIR /S /P
```

This batch file moves you to the root directory (CD\) and then gives you a list of all files in all directories (/S), pausing after each full screen (/P).

Every batch file needs a name. In such cases, you should pick your own name. Batch-file names carry the same limitations as any other DOS filename; you're limited to eight characters, plus a three-character extension. A batch-file name must always use the .BAT extension.

To avoid confusion and unexpected results, don't give any batch file the same name as another program or DOS command. For example, VCOPY.BAT is an acceptable name for a batch file, but not COPY.BAT or XCOPY.BAT, because COPY and XCOPY are the names of DOS commands. To run or execute a batch file, type its name at the DOS prompt. For example, to run a batch file called VCOPY.BAT, type `VCOPY` at the DOS prompt.

Creating and Saving

Using EDIT. If you have DOS 5 or later, you can create a batch file using EDIT. EDIT usually resides in your DOS directory. Type `EDIT` and enter your batch file. When you're done, press Alt+F and choose the Save option. Type the name of your batch file (make sure you add the extension .BAT) and press the Enter key.

Using other word processors. Most word processors don't save files in plain text; they include other characters, such as control characters that handle such matters as page formatting and typefaces. Most word processors, however, do give you an option to save in plain text. The procedure varies from one word processor to the next. For example, when you save a file in WordPerfect 5.1, you choose ASCII Text (DOS) as your Format option.

This Magazine

MAKING AN EMERGENCY BOOT DISK

Sometimes a *DOS World* article will suggest that you create a *bootable floppy*—a floppy disk that serves as an emergency system disk. That is, if your computer for some reason can't access your hard drive, you can start your computer from the emergency floppy. You should always have an emergency system disk available, but it's particularly important when you modify AUTOEXEC.BAT or CONFIG.SYS because you may change those files in such a way that your computer won't start from the hard drive. To create a system disk:

1. **Insert a floppy disk in drive A.**
2. **At the command line, type FORMAT A: /S (all existing information on the floppy will be lost).**

DOS first formats the floppy disk. Then it copies three DOS system files to the floppy disk: IO.SYS, MSDOS.SYS, and COMMAND.COM.

The first two are hidden files; you won't see them if you type DIR A:. If you have the disk-compression program DoubleSpace on your computer, the FORMAT command above will also copy DBLSPACE.BIN, a third hidden file, to the floppy disk.

After you've created your system disk, you should copy a few other basic files to your floppy. Go to your \DOS directory and copy the following files: FORMAT.COM, EDIT.COM, EDIT.HLP, QBASIC.EXE, UNDELETE.EXE, CHKDSK.EXE, FDISK.EXE, and SETUP.EXE.

DEBUG SCRIPTS

A Debug script is a list of assembly-language instructions you convert to an executable program using the program DEBUG.EXE in your \DOS directory.

Creating the script. A Debug script must be in plain text. The procedure for creating the script is the same as for creating a batch file. You can use DOS's EDIT program, or you can use a different text editor or word processor and save the script in plain text format.

Creating an executable program. After creating and saving the script, type the following command at the DOS prompt:

```
DEBUG < filename
```

where *filename* is the name of the Debug script you created. For example, if the name of your Debug script is KEYPRESS.SCR, you'd type this line:

```
DEBUG < KEYPRESS.SCR
```

at the DOS prompt. The executable program created by Debug will have the extension .COM. The name of the executable file is determined by the contents of the script. Our convention is to use the same name for the executable file as we do for the script. Thus, the executable file created by KEYPRESS.SCR will be named KEYPRESS.COM. Once you've created the executable file, you run it by typing its name at the DOS prompt. To run KEYPRESS.COM, type `KEYPRESS`.

PATHS AND THE PATH STATEMENT

DOS World articles often tell you to make sure that a particular file is in a directory included in your PATH statement. This lets you runs a .COM, .EXE, or .BAT file from any directory on any drive.

For example, an author might tell you to create a batch file called TEST.BAT, put it into a subdirectory called \BAT, and put the subdirectory into your PATH statement. You can then execute TEST.BAT by typing `TEST` from anywhere on your drives, without having to change to the \BAT directory first.

The PATH statement is a line in your AUTOEXEC.BAT file. It gives DOS a list of directories to search for requested files. Here's an example:

```
PATH=C:\DOS;C:\WINDOWS;C:\BAT
```

When you type `TEST` at the DOS prompt, DOS looks for the program first in the current directory, then in the root directory, and then, in order, the \DOS, \WINDOWS, and \BAT directories. When it finds TEST.BAT in the \BAT directory, it executes the batch file.

Continued on page 64

BASIC DEFINITIONS

DOS prompt. Also known as the *command prompt*. By default, the DOS prompt looks like this: C:\>. This is where you type the instructions to run programs or DOS commands.

Boot, boot up, reboot. The process of starting or restarting your computer. Turning on your computer is *booting* or *booting up*. Pressing the key combination Ctrl+Alt+Del restarts, or *reboots* your computer. So does pressing the reset button, if your computer has one.

Extensions. When we refer to a program by its common name (for example, the DOS command FORMAT) without an extension, you can assume that the extension is .COM or .EXE. When we refer to a batch file, we always include the extension .BAT. QBasic program names must always include the .BAS extension.

ASCII. American Standard Code for Information Interchange. For our purposes, an ASCII file is a plain text file, one that consists entirely of the characters you see on your keyboard.

Directories. Your hard drive has a main directory called the *root* or *home* directory. Directories created off the root directory are called *subdirectories*. When we provide the name of a subdirectory, it will look something like this: \WORD\FILES. Here, the root directory has a subdirectory called WORD, which in turn has a subdirectory called FILES.

File placement. We assume that the following files are in your root directory: AUTOEXEC.BAT, CONFIG.SYS, and COMMAND.COM. We also assume that your DOS files are in a DOS subdirectory, usually called \DOS.

Keystroke combinations. When you should hold down one key while pressing a second, we indicate it this way: Alt+F4 (press the Alt key and hold it down while you press the F4 key). When you should press one key, release it, and press another, we indicate it this way: Alt, F4 (press the Alt key, release it, then press the F4 key).

QBASIC PROGRAMS

QBasic is the programming language included in all versions of MS-DOS since version 5. The name of a QBasic program always ends with the extension .BAS.

Typing in the listing. Type `QBASIC` at the DOS prompt and press Enter to start. Now type in the listing as printed, pressing Enter at the end of each line. Note that when a line in the listing is indented two spaces from the line above and doesn't start with a command or keyword, it's a continuation of the previous line. Other indentations, or none at all, indicate a new line.

Subroutines and functions. QBasic listings often include subroutines and functions, and typing them is confusing at first. They begin with a line containing the keyword SUB or FUNCTION. Note that when you type a SUB or FUNCTION line and press Enter, all other lines you've typed will disappear from view. This can be disconcerting for beginning programmers. There's nothing to worry about—your listing is safe. To avoid screen clutter, QBasic simply hides other parts of your listing when you're typing in a subroutine or function. To see the other parts of your program, open the View menu at the top of the QBasic screen, then select SUBS. The SUBS dialog box will appear, letting you select the part of the program listing you want to view.

Saving a listing. Save your partially completed listing as you go along, rather than waiting until you've typed in the whole thing. To save, open the File menu, choose Save, and type in a filename when QBasic prompts you. We suggest using the filename specified in the magazine article. Subsequent saves of your listing won't prompt you for a filename, but will instead use the filename indicated the last time you saved the listing.

Running a program. After you've typed in the entire listing and saved it a final time, you can run the program by selecting Start from the Run menu or pressing Shift+F5. If QBasic finds an error, it will stop the program and highlight that line. To run a QBasic program (a .BAS file) stored on your hard drive, start QBasic, then select Open from the File menu. Choose from among the .BAS files displayed in the open dialog box to load the program into QBasic, then select Start from the Run menu or press Shift+F5. To stop a QBasic program, press Ctrl+Break; select Exit from the File menu to return to DOS.

***DOS World* BBS.** Typing and debugging a long listing is time-consuming. If you have a modem, our listings are always available on *DOS World*'s bulletin-board system (BBS) at 603-924-3181. There are no connect-time charges; you pay only for the phone call. Set your communication program to 8 data bits, no parity, 1 stop bit (8, N, 1). Dial the number and wait for the "Connect" message. If you're a first-time user, the system will ask you to enter your name and choose a password. Then it will display a general information screen, followed by a questionnaire requesting your address, phone number, and so on, so that we may set up your account. From this point, on-screen prompts are the same for all users. A series of messages present the latest BBS news; press Enter after each message to go to the next screen. From the Bulletin Menu, Bulletin #1 offers information on navigating the Main and File Menus, with instructions for listing, marking, searching for, and downloading files. ■

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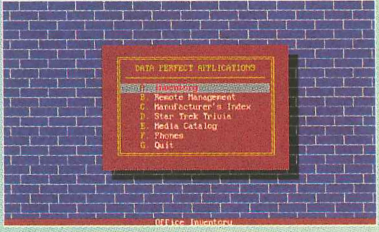

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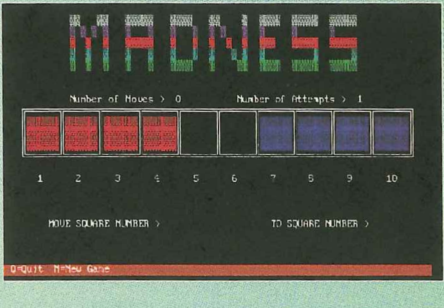

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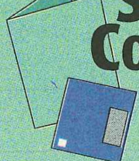

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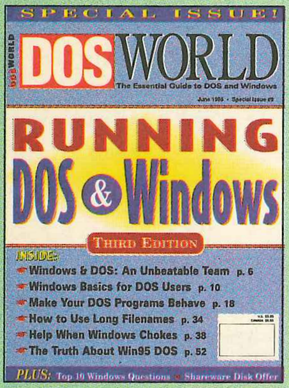
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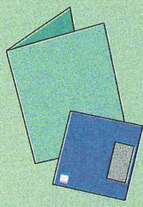

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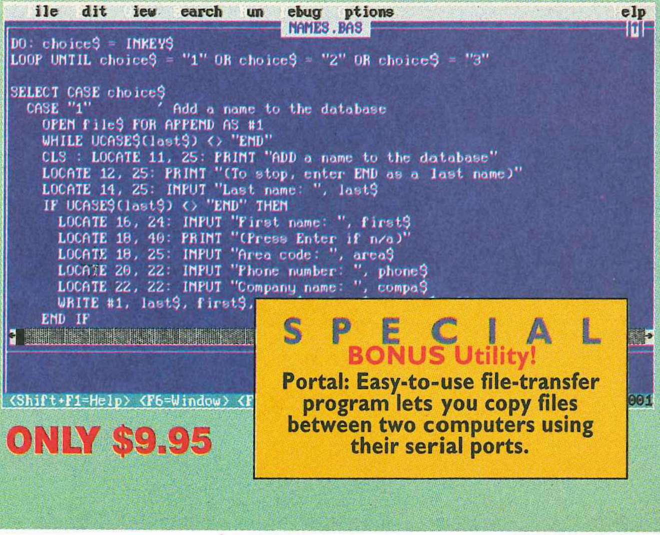

```
DO: choice$ = INKEY$
LOOP UNTIL choice$ = "1" OR choice$ = "2" OR choice$ = "3"

SELECT CASE choice$
  CASE "1"          ' Add a name to the database
    OPEN file$ FOR APPEND AS #1
    WHILE UCASE$(last$) <> "END"
    CLS : LOCATE 11, 25: PRINT "ADD a name to the database"
    LOCATE 12, 25: PRINT "(To stop, enter END as a last name)"
    LOCATE 14, 25: INPUT "Last name: ", last$
    IF UCASE$(last$) <> "END" THEN
      LOCATE 16, 24: INPUT "First name: ", first$
      LOCATE 18, 40: PRINT "(Press Enter if n/a)"
      LOCATE 18, 25: INPUT "Area code: ", area$
      LOCATE 20, 22: INPUT "Phone number: ", phone$
      LOCATE 22, 22: INPUT "Company name: ", compa$
      WRITE #1, last$, first$,
    END IF
<Shift+F1=Help> <F6=Window> <F
```

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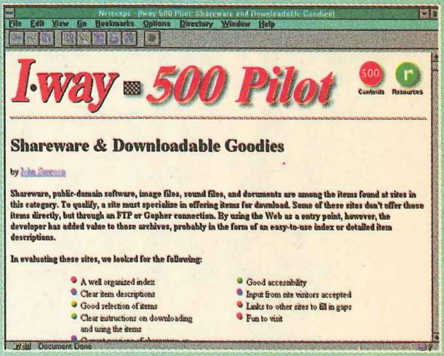
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by John Simpson

Shareware, public-domain software, image files, sound files, and documents are among the items found at sites in this category. To qualify, a site must specialize in offering items for download. Some of these sites don't offer those items directly, but through an FTP or Gopher connection. By using the Web as a entry point, however, the developer has added value to those archives, probably in the form of an easy-to-use index or detailed item descriptions.

In evaluating these sites, we looked for the following:

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DOS WORLD

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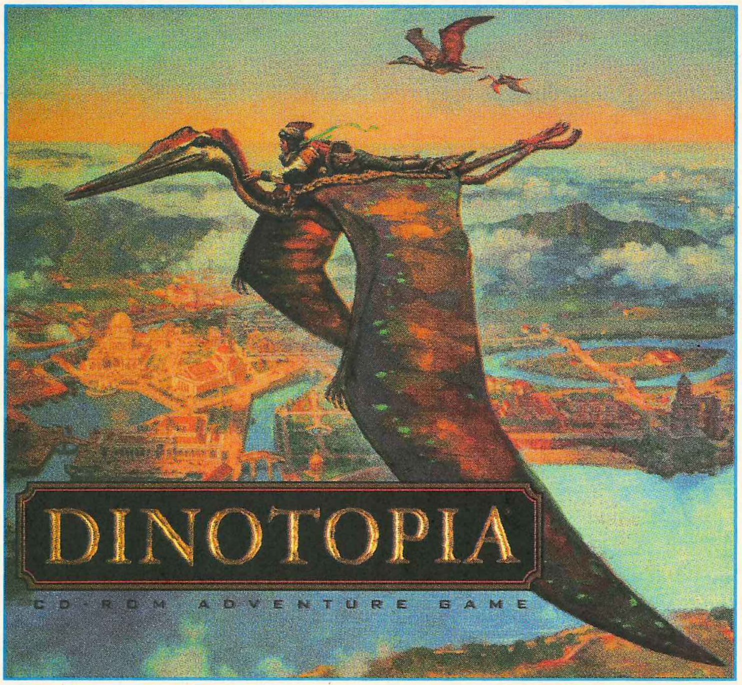
NEW WORLD DOWN UNDER

"Breathe Deep, Seek Peace" seems to be the guiding philosophy behind **Dinotopia**, a DOS-based interactive fantasy adventure from Turner Interactive ($49.98 plus $4.95 shipping; 404-885-7972, orders 800-294-0022). No blood 'n' guts here, but you'll find plenty of mystery and intrigue nonetheless. Based on the best-selling children's books *Dinotopia: A Land Apart from Time* and *The World Beneath*, by James Gurney, an artist with a special interest and training in archaeology and paleontology, this CD-ROM game combines live actors, enriched 3D graphics animation, blue-screen technology, Animatronic (radio-controlled) dinosaur puppets, sound effects, music, and speech for a rich and enthralling multimedia experience.

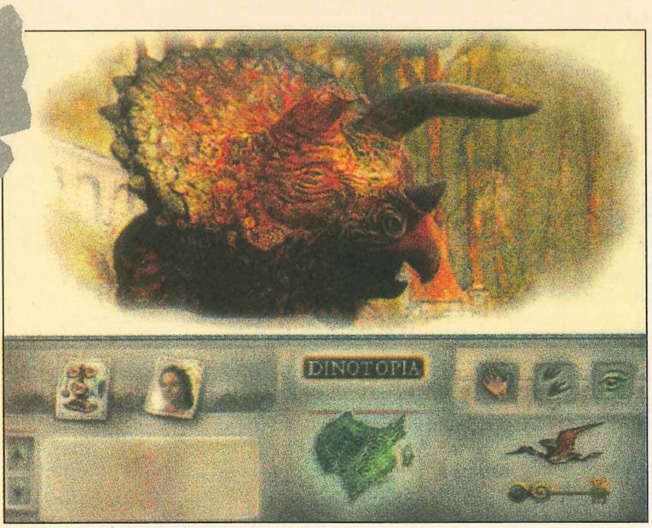
As the game opens, you find yourself in the year 1878. Following the deaths of their parents in the Australian outback, 17-year-old twins Nathan and Constance Drake book passage to North America. During a storm at sea, however, Constance is swept overboard; Nathan jumps in to save her, but nearly drowns, and eventually washes up alone on a beach far from home. As Nathan, you'll wander into a rainforest and discover a complex civilization in which dinosaurs of every species and human castaways from every nation have created a culture of wisdom, beauty, and adventure.

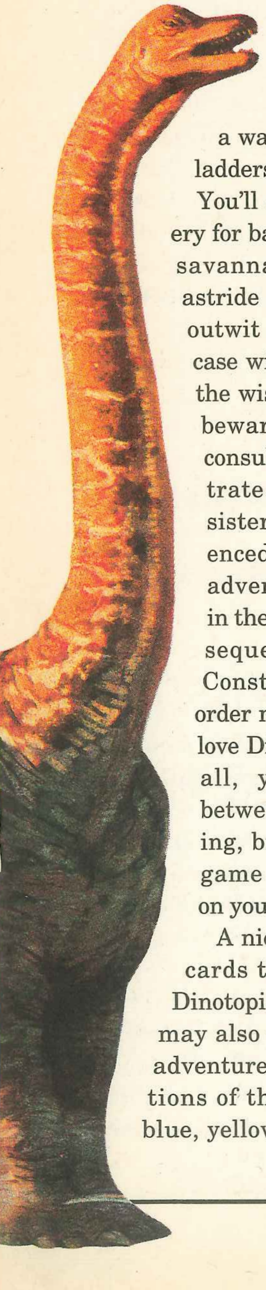
When by chance you find Constance's locket, you set out across the island in search of her. Twelve distinct habitats, dozens of scenes, and 130 characters—both dinosaur and human—await. Along the way, as in any good adventure game, you must acquire skills, knowledge, and objects for your inventory, such as a rope, a conch shell, a pocket watch, a sunstone, a bit of fireweed, a piece of moss.



Early on, be sure to look for an English-speaking human who can teach you the language of this strange land; she'll give you a primer that will let you decipher signs and messages written in Dinotopia's three-toed alphabet (devised by a group of ancient dinosaur scribes, of course).

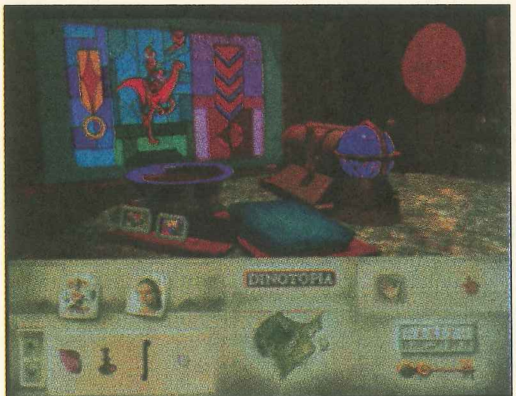
To navigate and communicate, try out all the icons: feet, hand, eye, map, question mark, and so on. Pick up everything, talk to everybody, explore every region. And take your time; you'll find hidden passageways and multiple moral and mental challenges in every world you enter. Courage and imagination count here. You'll





encounter engaging intellectual puzzles—such as how to assemble a gramophone, which your Stegosaurus pals demand before they'll take you to the Temple Ruins—and a number of physical trials, as well, such as jumping off a cliff to hop astride Thundra, your skybax, or navigating a submarine through a watery underworld, or climbing snow bridges, ladders, and gangplanks.

You'll explore a windmill, a greenhouse, a hatchery for baby dinos; a desert, a mountain, a jungle, a savanna; even a city of plazas and palaces set astride a thundering waterfall. You'll attempt to outwit the fierce velociraptor Onno; plead your case with Tok Timbu, master of metallurgy; seek the wisdom of Levka Gambo, the Tibetan priest; beware of Lee Crabb, the island misanthrope; consult Brokehorn, the wise Triceratops magistrate; and rejoice when you finally find your sister and her pal Snapfire, who have experienced their own mystical adventures on Dinotopia in the meantime. (Maybe a sequel focusing on Constance's odyssey is in order now? Girls are sure to love Dinotopia, too.) Best of all, you get to choose between staying and leaving, bringing up different game endings depending on your decision.

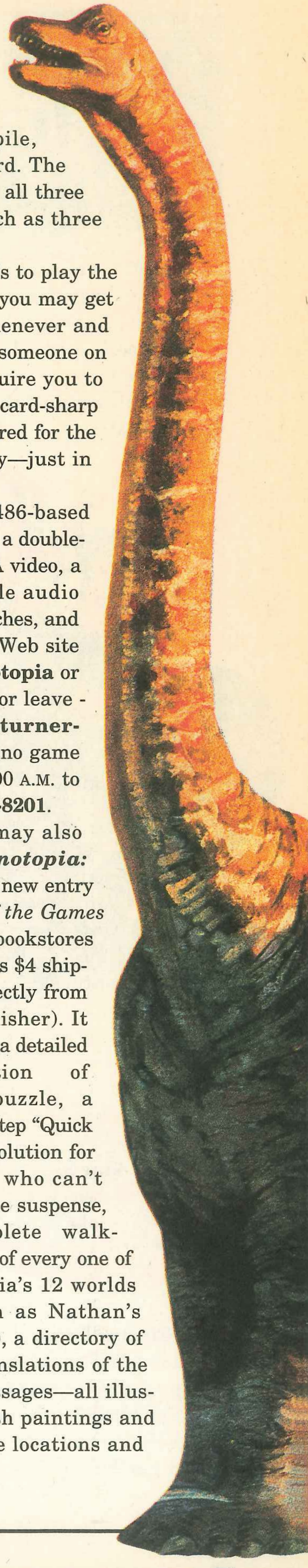


A nice plus is the deck of cards that comes with the Dinotopia package. The game is Treble, which you may also play on screen during the course of your adventures. The deck contains 27 cards: combinations of three numbers (1, 2, 3), three colors (red, blue, yellow), and three symbols (sun, moon, stars). You and your opponent each hold a hand of three cards. With every turn, you try to improve your hand by picking a new card from the deck or the discard pile, while tossing out your worst card. The winner is the first player to have all three cards matching in two ways (such as three red moons).

You won't need the actual cards to play the on-screen version of Treble—but you may get hooked and want to practice whenever and wherever you can. Don't forget—someone on the island of Dinotopia may require you to play for high stakes, so hone your card-sharp skills while you can and be prepared for the challenge with a hefty inventory—just in case you lose a few rounds.

Dinotopia requires a 66MHz 486-based PC, DOS 5 or later, 8MB of RAM, a double-speed CD-ROM drive, Super VGA video, a 16-bit SoundBlaster-compatible audio card, and a mouse. For hints, patches, and other goodies, dial into Turner's Web site at **http://www.turner.com/dinotopia** or **www.turner.com/interactive** or leave - e-mail at **turner.interactive@turner-.com**. In addition, tech support (no game hints or solutions) is available 8:00 A.M. to 9:00 P.M. Eastern time at **800-239-8201**.

Game buffs and dinophiles may also appreciate John K. Waters' ***Dinotopia: The Official Strategy Guide***, a new entry in Prima Publishing's *Secrets of the Games* series (800-531-2343; $16.99 at bookstores and software retailers; $19.95 plus $4 shipping directly from the publisher). It contains a detailed description of every puzzle, a step-by-step "Quick Guide" solution for players who can't stand the suspense, a complete walk-through of every one of Dinotopia's 12 worlds (written as Nathan's memoir), a directory of characters and objects, and translations of the game's three-toed alphabet messages—all illustrated with James Gurney's lush paintings and screen shots of important game locations and trouble spots to watch for.



LIONS, TIGERS, & BEARS . . .

It's a bird! It's a plane! It's . . . Supersnail? Sure, why not? In the hands of LucasArts' innovative designers and programmers, even a lowly gastropod can be a hero.

In **Mortimer and the Riddles of the Medallion**, the company's first CD-ROM game strictly for kids (ages 5 to 11; $39.95 estimated street price; 415-472-3400), Sid and Sally hop aboard their pal's shell and zoom around the world to free a host of wildlife that have been turned into statues by the evil Lodius's spell. Whenever they save an animal (by zapping it with their "Revitascope"), information about that species is recorded in Mortimer's cockpit computer.

In the race to rescue the world's creatures, Sid, Sally, and Mortimer visit a selection of locales, including the Arctic, a savanna, a desert, and timberland. To pass into the next territory, players must solve a riddle, the answer to which is the name of a critter they've freed earlier in the game. Players use Mortimer's cockpit computer to gather facts from the animals they've saved; each beastie shows its own distinct and humorous personality as it answers questions such as "What are you?" and "Why are you unusual?" Whenever they solve a riddle, players collect another piece of an all-important magic medallion.

Along the way, Sid and Sally run into a raft of adversaries—hornets, popcorn poppers, and potato-chip bags come to life—who try to stop Mortimer in his tracks with a snail's worst enemy: salt. But players can move fast and cream the bad guys with the Slimetron Muckchucker 2000. When they've freed all the animals, solved all the riddles, and gathered every piece of the medallion, they face Lodius himself in a final confrontation.

The game's virtual worlds are rendered in 3D, complemented by high-resolution 2D animation and live-action video footage of animals in their natural habitats. Professional actors supply characters' voices; the original soundtrack is performed by the kids'-entertainment group Bungee Jumpin' Cows. Mortimer requires a Pentium PC, Windows 95, a double-speed CD-ROM drive, a sound card, a mouse or a joystick, and 256-color Super VGA.

MORTIMER™

AND THE RIDDLES OF THE MEDALLION™

Young At Heart

Retirees eager to stay on top of the latest technological trends will appreciate a boost from a new book written just for them: ***young@heart: Computing for Seniors***, by Mary Furlong and Stefan B. Lipson, published by Osborne/McGraw-Hill ($22.95, softcover, 368 pages; 510-549-6600, orders 800-822-8158; **http://www.osborne.com**).

young@heart is a straightforward guide to the basics: system purchase and setup, file organization, the role of peripherals (including hard drives, monitors, modems, CD-ROMs, scanners, mice, keyboards, sound cards, and multimedia kits), a rundown on software categories (word processing, desktop publishing, database managers, accounting and finance programs, graphics and music packages, games, and utilities, with popular brand-name products highlighted), and a summary of on-line services and Internet options.

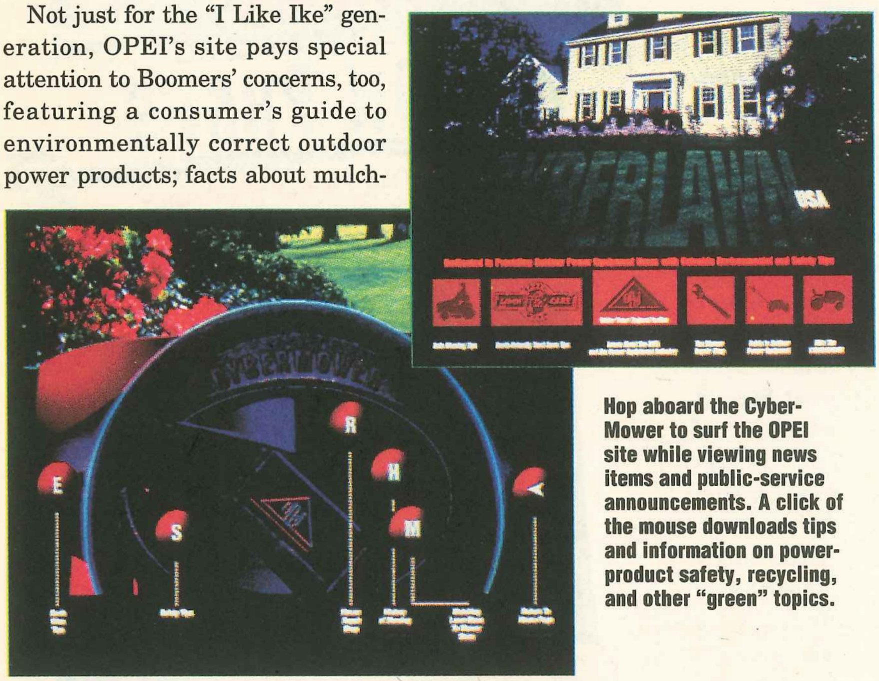
Actually, *young@heart*'s friendly, low-key tone makes it suitable for novices of any age looking for a gentle introduction to computing. Items of special interest to an older audience, though, include profiles of retirees who've discovered new hobbies and interests (or even a new livelihood) thanks

The Greening Of Cyberspace

Now, this one might tempt even your computerphobic dad to start surfing the Net.

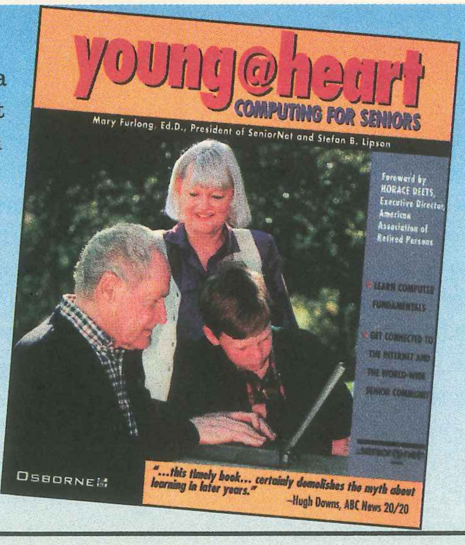
The Outdoor Power Equipment Institute (OPEI; 703-549-7600), a manufacturers' trade association founded in 1952, has now launched itself into the Silicon Age with **CyberLawn USA**, a new home page on the World Wide Web devoted to yard and garden care.

Not just for the "I Like Ike" generation, OPEI's site pays special attention to Boomers' concerns, too, featuring a consumer's guide to environmentally correct outdoor power products; facts about mulching, composting, and recycling; and audio public-service announcements on safety and "earth friendliness." Then, of course, there's the Mower Maintenance Shop, with tips on keeping your gear in top working order. Somehow we think Ward and the Beav would both feel right at home. Visit CyberLawn USA this summer at **http://opei.mow.org**.



Hop aboard the Cyber-Mower to surf the OPEI site while viewing news items and public-service announcements. A click of the mouse downloads tips and information on power-product safety, recycling, and other "green" topics.

to computing. Also featured is a chapter on **SeniorNet**, a nonprofit group that sponsors forums on America Online and The Microsoft Network as well as "Learning Centers" offering classes in computer skills in a number of cities around the U.S. (Coauthor Mary Furlong is the founder and president of SeniorNet.) For membership information, contact the group at 1 Kearney Street, San Francisco, CA 94108; 800-747-6848.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Mary Furlong, Ed.D., President of SeniorNet and Stefan B. Lipson
Foreword by HORACE DEETS, Executive Director, American Association of Retired Persons
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GET CONNECTED TO THE INTERNET AND THE WORLD-WIDE SENIOR COMMUNITY
OSBORNE
"...this timely book... certainly demolishes the myth about learning in later years." —Hugh Downs, ABC News 20/20

Roll the Presses

For offices, networked home computers, and other power applications, Lexmark (800-891-0331) introduces its new **Optra N** monochrome laser printer, available in two models: the 240, with 4MB of RAM, and the 245, with 16MB of RAM, both expandable to 16MB. Flash-memory modules (for permanent storage of fonts and macros) and a hard drive are optional. At press time, the company had not yet announced pricing.

Based on the 50MHz Intel i960 processor and Lexmark's own Image Enhancement Technology (IET), the Optra N can produce 256 shades of gray in 600-dpi (dots per inch) mode at a speed of 24 pages per minute for letter-sized sheets. According to Lexmark, that's the fastest throughput and sharpest print of any laser model in its class.

The Optra N comes with two 500-sheet input trays—one for letter- and legal-sized paper, one for 11-by-17—and a 100-sheet input tray, which accommodates all paper sizes. Options include a 2000-sheet input drawer, an internal duplexer for two-sided printing, and an envelope feeder.

Free with Optra printers is Lexmark's **MarkVision** management utility—available in Windows 3.1, Win95, and OS/2 Warp versions—designed to make network administrators' lives a little easier. MarkVision smooths Optra installation and offers easy remote access to printer functions; it can report not only the serial numbers and installed options of all Optras in the network, but the amount of paper in any input tray, as well.

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ISBN 0-07-882197-5
$19.95 U.S.A.

Want to save yourself hours of aimless on-line searching? From Osborne/McGraw-Hill comes a sequel to the company's popular *Internet Yellow Pages*. ***The Internet Kids Yellow Pages: Special Edition*** ($19.95, softcover, 355 pages; 510-549-6600, orders 800-822-8158; **http://www.osborne.com**) is a compendium of more than 1800 Net addresses (98 percent of which are Web sites), each accompanied by an upbeat and succinct description giving you a feel for the material covered. Addresses are organized into 127 main categories, listed alphabetically, with more than 350 subcategories.

Each site has been chosen by author Jean Armour Polly—a consultant, mother, member of the Internet Society Board of Trustees, and former librarian—and a team of professional teachers, resource specialists, and Internet experts. Selected sites are either designed expressly for children or are judged suitable for any age (no violent or erotic content). Adults will find informative sites covering family issues and parenting, disabilities, giftedness, health and safety, home schooling, educational computing, on-line reference works, and travel tips, as well as loads of stuff that's just plain fun for curious minds, young and old alike.

Beyond the expected kids' entries among dinosaurs, dogs, sports, and TV, every page delivers at least a couple of delightful surprises: sites devoted to Cyrillic writing, the Gaelic languages, Middle Egyptian, and Hawaiian; words of wisdom from Michael Tilson Thomas, Arlo Guthrie, and Wynton Marsalis; info on rhinos, Muppets, and parachuting teddy bears; mouth-watering descriptions of chocolate confections, Ben & Jerry's creations, even garlic.

Follow Boston's Freedom Trail, zip over to Moscow to visit a Russian exhibit on the Kremlin's history, art, and architecture, control an interactive model train in Germany, tour a museum in Hawaii, check on the progress of research on Antarctica, marvel at the masterpieces of the Vatican, exchange artwork and letters with penpals around the globe.

Sprinkled heavily throughout the book are "Net Files"—trivia questions directing you to additional sites—plus other boxes pointing up intriguing tidbits to be found on line, both illustrated with amusing graphics in a variety of styles. Also included are Jean Armour Polly's recommended "Top 50 Extraordinary Experiences for Internet Kids": ranging from science (look inside a human heart) to the arts (climb a lighthouse) to sports (sail a boat around the world) and seven other topics. So settle back and dig in—*The Internet Kids Yellow Pages* offers nothing less than the world at your fingertips.

continued on p. 76

DW MARKETPLACE

READERS: To help you learn more about the many interesting products available for your PC, **DOS World** has created the **DW MARKETPLACE**. This special section makes it easy to contact companies offering a wide range of accessories, software, and services. Listings are grouped by product category for your convenience.

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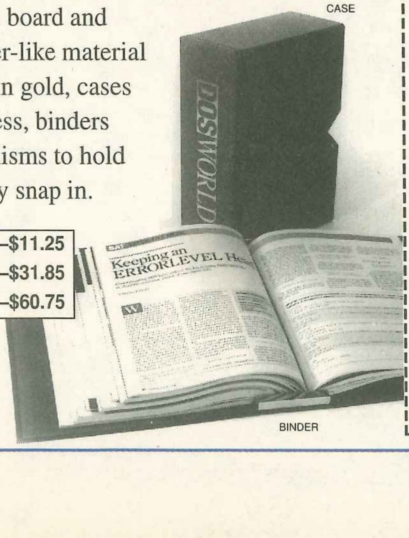

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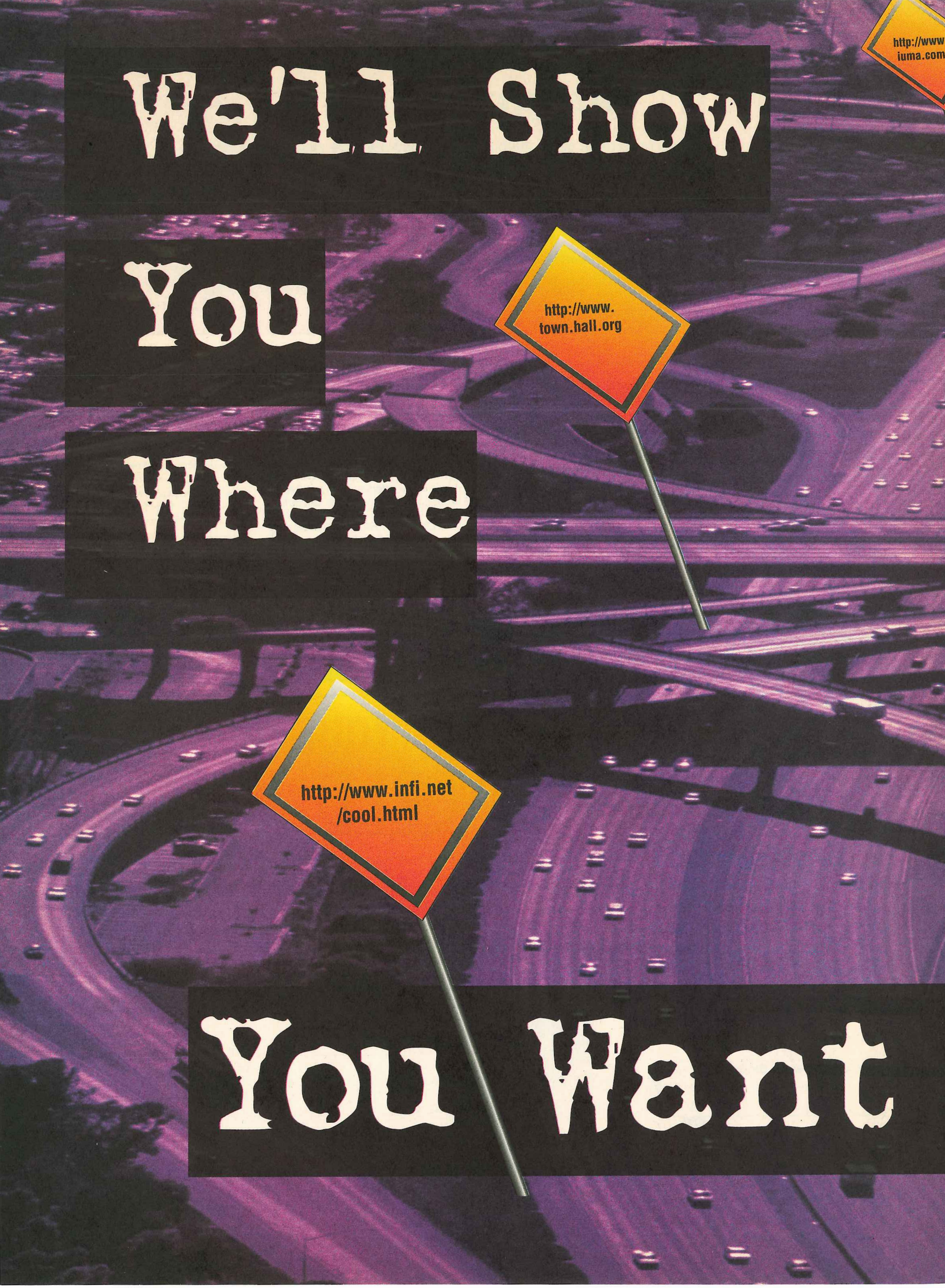
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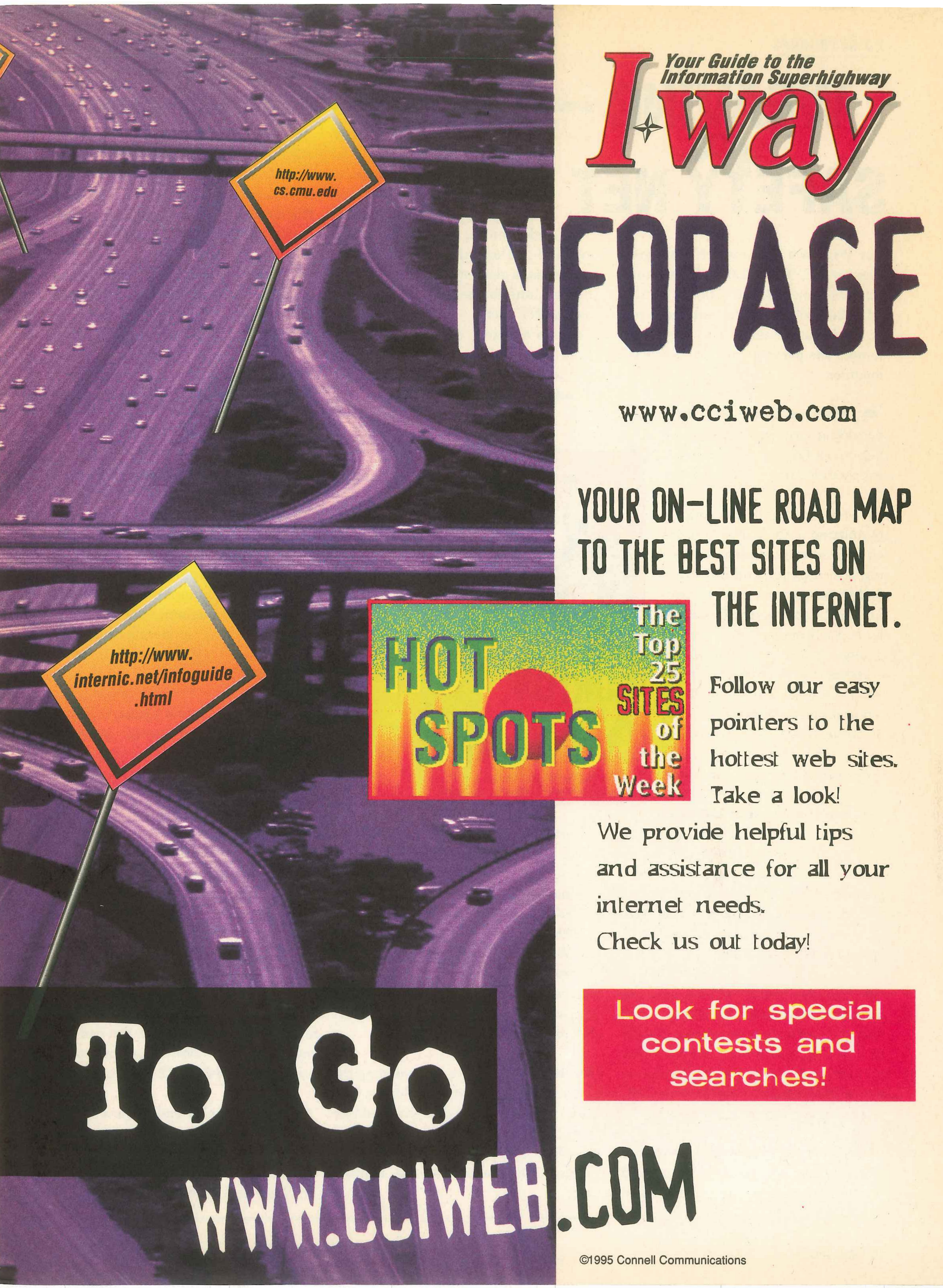

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WEAVING A SAFETY NET

For Windows NT network managers, **Norton NT Tools 1.0** from Symantec Corporation ($49.95; 800-441-7234, 541-334-6054) promises enhanced productivity and easier system maintenance. The package includes four basic modules:

- **Norton AntiVirus Scanner**, providing virus detection, elimination, and repair (on demand or at scheduled times)

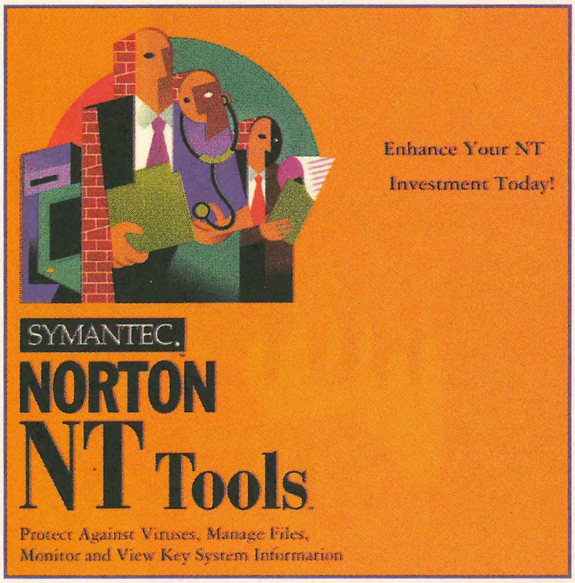
- **Norton File Manager**, permitting a range of operations on any network system, including file copying and deletion; folder comparison and synchronization; device setup; file transfer to and from FTP sites (just by dragging and dropping); file encoding and decoding for Internet transmission; backup of Microsoft program disks; fast file search by name, date, size, attribute, or text string; and on-the-fly file compression and decompression

- **Norton System Doctor**, which runs in the background, monitoring any system conditions and thresholds you've specified (for disks, memory, CPU, and so on), and notifies you whenever any of them is approaching a critical level that could result in a system crash or data loss

- **System Information**, offering detailed information on memory and disk use, network connections, peripheral specs, setup files, and system performance—very handy whenever you're installing new hardware or software or troubleshooting problems

The software's **Norton Control Center** lets you set AntiVirus and System Doctor options quickly and easily from a convenient graphical interface. Context-sensitive help, dubbed **Info Desk**, is available in all modules by right-clicking on any element; a topic index leads you to detailed information, cross-references, a glossary, and step-by-step instructions for performing specific tasks in NT Tools.

A user's guide, with a number of clear screen shots in an attractive, easy-to-read design, takes you through all major aspects of the package.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NT Tools
Protect Against Viruses, Manage Files, Monitor and View Key System Information

Norton NT Tools comes on CD-ROM, but a printed form at the end of the manual lets you exchange the disc for a 3.5-inch floppy. The software requires a 386/33-based system or later, 16MB of RAM, 8.5MB of free hard-disk space, and Windows NT 3.5.1 or later.

Symantec offers an unusally large number of avenues for communicating with the company, either by phone or electronically:

- **StandardCare** technical support is available to registered Norton NT Tools users at no charge for 90 days from the date of your first call: **541-984-7875**. Hours are Monday through Friday, 7:00 A.M. to 4:00 P.M. Pacific time.

- Thereafter, tech support is available via special phone lines for Symantec's **PriorityCare 800** or **900** or **PremiumCare 800 Gold** and **Platinum** plans (per-incident, per-minute, or per-year fees, respectively).

- The latest patches, drivers, and virus-definition sets (free, updated monthly) are available from the company's FTP site (**ftp.symantec.com**).

- Company news and information are available on a Web home page, **http://www.symantec.com**, which also links to the FTP site.

- Symantec maintains two automated fax-retrieval systems, available 24 hours a day. Call **541-984-2490** to receive an index listing of tech-support documents, including application notes and "how-to" samples, or **800-554-4403** for customer-service documents, such as product information, data sheets, and upgrade order forms.

- Symantec's **Virus Update Subscription Service** provides new virus-definition sets quarterly on disk, sent directly to you for a yearly fee.

- You may also call the **Norton AntiVirus Research Center** with related questions, regardless of the brand of antivirus software you're using: **541-984-7879** (541-9VIRUS9).

- Symantec's **BBS** offers sample files, technical notes, virus-definition sets, a customer-service center, shareware and public-domain titles, FAQs, and support forums where you can exchange tips and information with other users: **541-484-6669** (24 hours a day).

- Symantec also maintains a forum on CompuServe (GO SYMANTEC or GO SYMNEW), a bulletin board on America Online (SYMANTEC), and a service on The Microsoft Network (SYM-NAV95).

continued on p. 78

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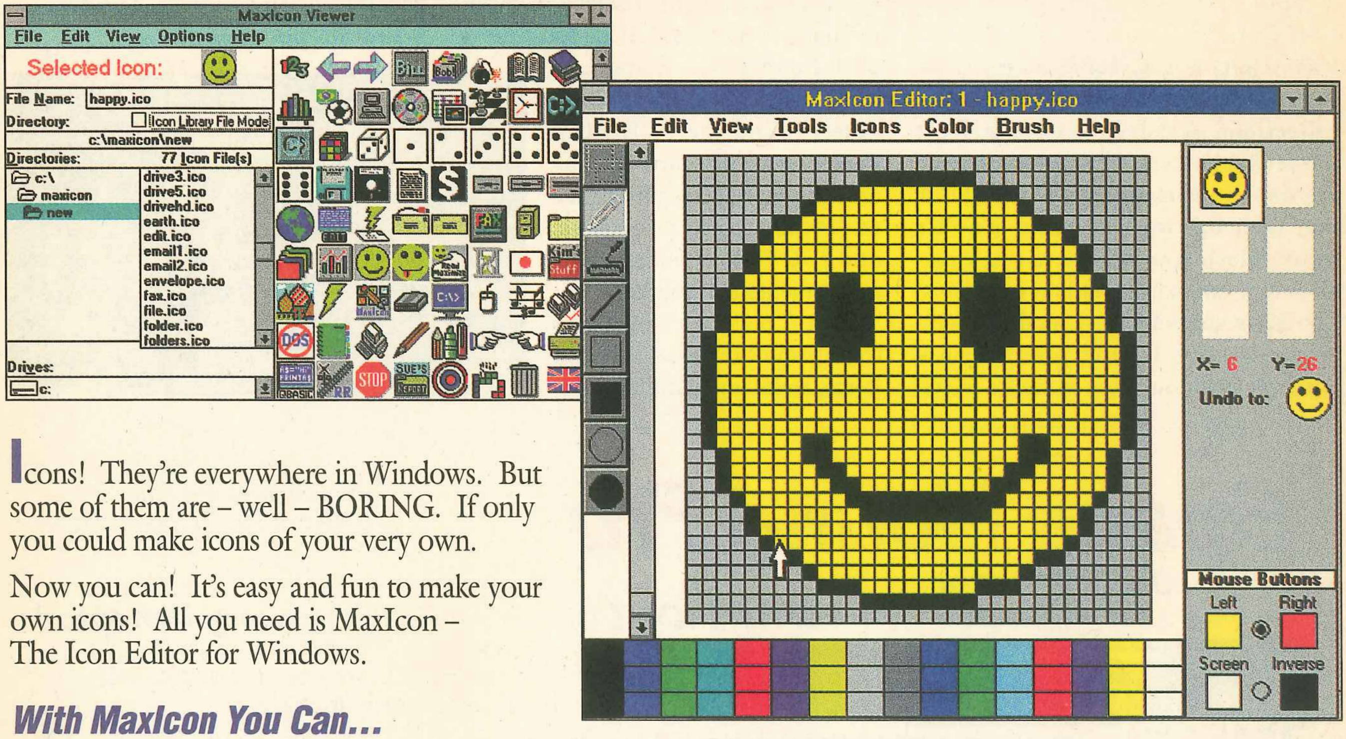
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What's Up, Doc?

At home, in the office, or on the road, PC users with a technical bent may find TouchStone Software Corporation's **CheckIt Diagnostic Kit 4.0** ($129.95, upgrades $49.95; 714-969-7746, 800-531-0450, orders 800-932-5566; e-mail **74431,1125@compuserve.com**) a handy addition to their tool collections. A CKDATA applet gathers comprehensive system information and stores it in compressed files (CKDs); they form a permanent record of a PC's setup, which you can use to track performance and configuration over time. The Kit's software can read any system's CKD file, letting you diagnose multiple systems from a single workstation. (It's not a network product, though; data is on disk, not "live.") The Diagnostic Kit package contains four main components:

✓ **CheckIt 4** (for DOS), on two self-booting 3.5-inch disks, goes beneath the operating system and analyzes hardware components directly. It can also detect setup changes and rescue CMOS and other critical system files in the event of battery failure.

Disk 1 reports detailed information on hardware and other system components, including CPU model and speed, memory allocation, BIOS, hard-drive performance, serial and parallel port settings, modem, video, sound card, CD-ROM drive, network connections and cards, I/O (input/output) addresses, CMOS settings, and IRQ (interrupt request) assignments and conflicts.

Disk 2 tests your system's CPU and other motherboard items, serial and parallel ports, hard disk and controller, floppy drive and any disks, CD-ROM drive, video system, printer, keyboard, joystick, mouse, and modem.

This disk also includes Qualitas's utility **RAMexam**, which identifies defective memory areas (conventional and extended) before they lock up your system or destroy your data.

✓ **WinCheckIt Pro** (for Windows 3.1 and 95), on three 3.5-inch disks, tracks system changes and performs diagnostics, letting you pinpoint problems, resolve setup conflicts, and free up Windows memory.

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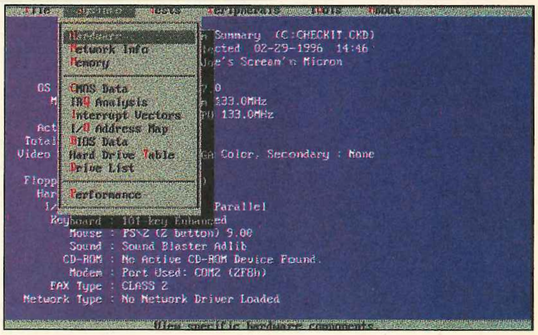

```
 Summary  (C:CHECKIT.CKD)
 cted  02-29-1996  14:46
Joe's Scream'n Micron

    Keyboard : 101-key Enhanced
       Mouse : PS\2 (2 button) 9.00
       Sound : Sound Blaster Adlib
      CD-ROM : No Active CD-ROM Device Found.
       Modem : Port Used: COM2 (2F8h)
    FAX Type : CLASS 2
Network Type : No Network Driver Loaded
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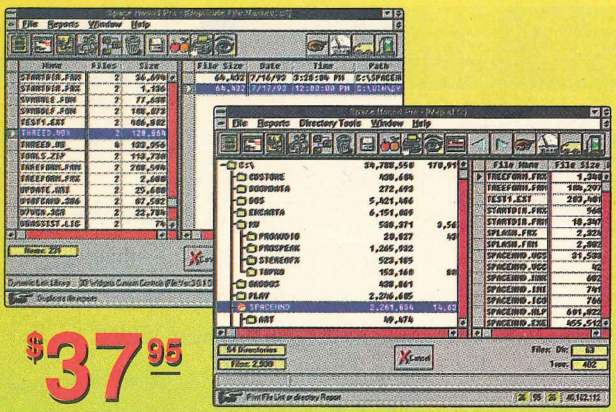

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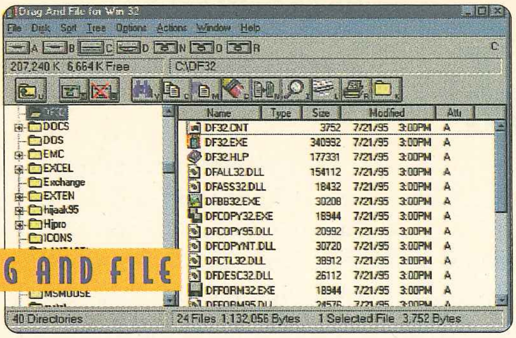
DRAG AND FILE



```
Name          Type  Size    Modified        Attr
DF32.CNT            3752    7/21/95 3:00PM  A
DF32.EXE            340992  7/21/95 3:00PM  A
DF32.HLP            177331  7/21/95 3:00PM  A
DFALL32.DLL         154112  7/21/95 3:00PM  A
DFASS32.DLL         18432   7/21/95 3:00PM  A
DFBB32.EXE          30208   7/21/95 3:00PM  A
DFCOPY32.EXE        18944   7/21/95 3:00PM  A
DFCOPY95.DLL        20992   7/21/95 3:00PM  A
DFCOPYNT.DLL        30720   7/21/95 3:00PM  A
DFCTL32.DLL         38912   7/21/95 3:00PM  A
DFDESC32.DLL        26112   7/21/95 3:00PM  A
DFFORM32.EXE        18944   7/21/95 3:00PM  A
```

Streamlines and simplifies file management under Windows 95. Offers several unique functions, such as a directory finder, a duplicate-file finder, and a DOS command utility.

Drag and File works at several levels of sophistication and integrates with other management and utility programs. The result is an uncommon degree of flexibility. When you need more, Drag and File delivers.

Drag and File offers a broad range of file management tools: Drag-and-drop file move, copy, and delete • Viewing of all text and most graphics files • Single-click execution of most-frequent tasks from a toolbar • Configurable hot-key control for hands-on keyboard execution • Formatting and disk copying for floppy diskettes • Full access to Windows 95 functions like creating shortcuts, Quick View, and file properties.

TEXTPAD

Satisfies your most demanding text-editing requirements. TextPad is easy for beginners, yet includes all the power needed by experienced users. Edit multiple files simultaneously, with up to two views on each file. Drag and drop text between files. Edit huge files, limited only by the amount of memory in your system.

In addition to the usual cut-and-paste capabilities, you can correct the most common typing errors with commands to change case, and transpose words, characters, and lines. Other commands let you indent blocks of text, split or join lines, and insert whole files.

Any change can be undone or redone, right back to the first one made. In-context help is available for all commands, and in-context menus pop up with the right mouse button. If Windows Notepad is your only experience with a text editor, you'll be astounded at what TextPad can do!

FASTEXIT

FastExit is the easy way to exit from Windows 95! Just double-click on the FastExit icon in the Win95 program tray in the lower-right corner of the Taskbar. You'll exit Windows before you know it!

EZDESK

EzDesk is a small Windows 95 utility that manages the layout of your desktop and much, much more. EzDesk sits in the program tray on the Taskbar and lets you control many features of Win95. With EzDesk, you can: • Preserve the location of desktop icons for each display resolution • Hide or minimize all windows, then restore them • Clear the Documents menu • Clear the Find Files and Folders most-recently-used list • Clear the contents of the Run... history • Shut down Windows quickly via a hot key. EzDesk is a little program that does a lot!

FOLDERSIZE

This handy utility installs as an extension to Explorer, and is then available every time you right-click on a folder. Folder Size appears as an option on the menu, and when selected, scans the folder and all its subfolders. It then displays a pop-up summary of the total number of files, and their total size, in kilobytes. It's a quick and easy way to discover which folders are occupying space on your hard disk.

WIDEOPEN

WideOpen lets Word 6.0 take advantage of many new features of Windows 95. After you install WideOpen, Word 6.0 will use the new Windows 95 File Open and Save dialog boxes, and will support long filenames and other features of Windows 95. Now that you've switched to Windows 95, take full advantage of it by updating your word processor! Requires Word 6.0.

The programs in the Maximize Power Pak are shareware. That means you're free to use and evaluate each program for a period of time, but then must pay a registration fee if you continue using the program beyond the evaluation period. Maximize Windows is providing these programs for your evaluation at low cost on a "try-before-you-buy" basis with the permission of the program authors.

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Local mode reveals "live" information on your current computer system; Support mode calls up CKD disk files created on another user's system.

Specs and performance data cover the CPU, BIOS, CMOS settings, IRQ settings and conflicts, interrupt use, I/O addresses, hard and floppy drives, keyboard and mouse, modem, video, sound card, CD-ROM drive, network connections and cards, and memory use under Windows.

You can also perform diagnostic tests on your system's hardware, including the motherboard, hard drive, floppy drives, and serial and parallel ports.

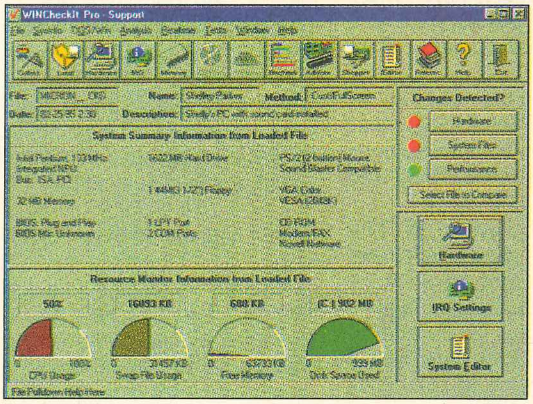
A modem test tells you that device's maximum speed, COM-port and IRQ (interrupt-request) assignments, I/O (input/output) address, and supported protocols.

A CD-ROM test reveals the drive's transfer rate, average access time, disc type, and sector size, plus a range of information about your video display (maximum number of colors), sound card (record and playback frequencies), CPU type, system memory, and hard-disk-drive size.

The program offers an abundance of maintenance utilities, as well. **System File Editor**, for example, lets you alter or restore critical items such as your AUTOEXEC.BAT, CONFIG.SYS, WIN.INI, SYSTEM.INI, and Windows 95 Registry information from earlier versions of these files.

Rescue utilities save critical GRP files, drivers, and CMOS information; even if you can't access Windows, you can rebuild your configuration to get your computer up and running. in the event of a system crash.

Uninstall removes and archives unwanted applications and their related files. A module called **Clean & Zip** sorts files by name or extension and lets you choose to delete or archive (compress) those you don't need, including duplicate and temporary items, thereby freeing up disk space. It also offers basic file-management functions, too, including copy, move, delete, and rename.



System Summary Information from Loaded File

Resource Monitor Information from Loaded File

Memory Defragger optimizes Windows RAM. **Software Shopper** compares specifications of popular packages with your system's configuration data to gauge product compatibility.

✓ The four-volume **Osborne/McGraw-Hill Technical Reference Library** on CD-ROM brings you compact-disc editions of the hefty tomes *Windows 95 Made Easy*, *Windows 3.1 Made Easy*, *DOS Made Easy*, and *Upgrade or Repair Your PC*.

✓ A bonus is TouchStone's **CheckIt Tools**: two screwdrivers and a set of three loopback plugs (DB-25 female, DB-25 male, and DB-9 male), which simulate parallel- and serial-port signal transmission for full-scale diagnostic testing.

The kit's software requires a 25MHz 386 DX-based system, DOS 3.3 or later, Windows 3.1 or later, VGA video or better, 4MB of RAM with a 2MB swap file, and a 120MB hard drive with 8MB of free disk space. The package comes with two comprehensive yet easy-to-read manuals.

Tech support is free for 90 days after registering CheckIt Diagnostic Kit; call **714-374-2801** (or fax **714-969-4444**) Monday through Friday, 8:00 A.M. to 5:00 P.M. Pacific time. After hours or after the warranty expires, tech support costs $2 per minute; call **800-859-1763**.

Free support is available to any registered user at any time via TouchStone's BBS (**714-969-0688**), Web site (**www.checkit.com**), CompuServe forum (**GO TOUCHSTONE**), or America Online bulletin board (**GO TSCTECH**). ■

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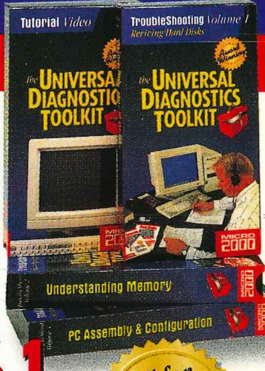
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